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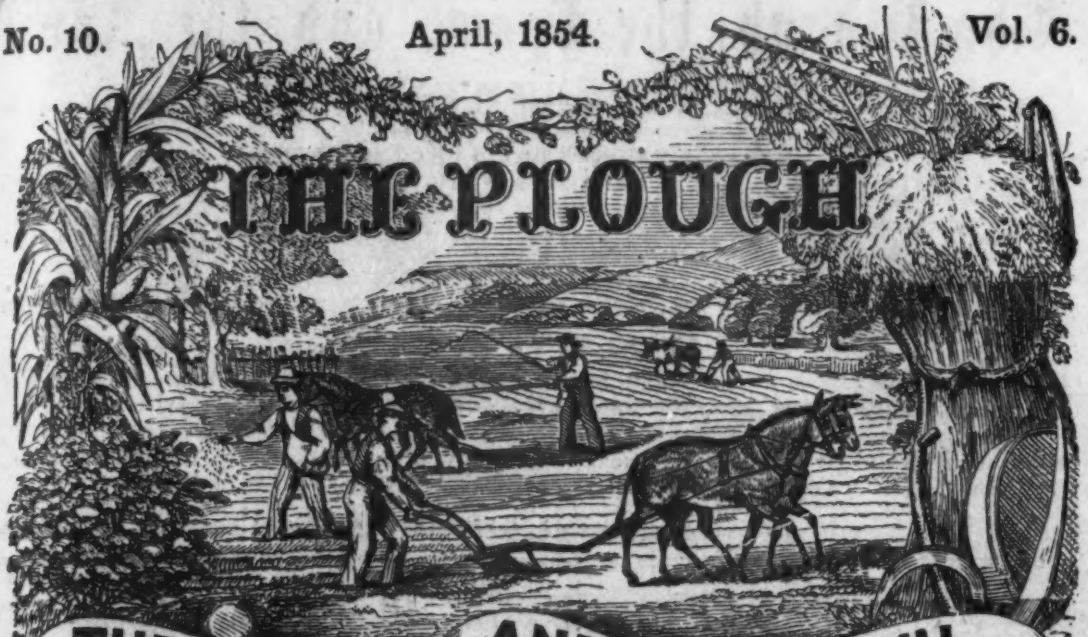
THE PLOUGH



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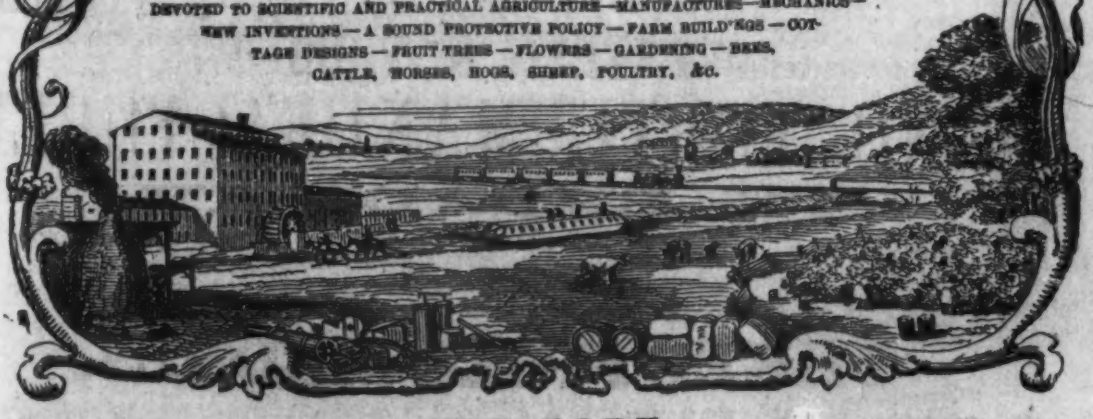

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PART II.—VOL. VI. APRIL, 1854. No. 4.

DUTIES ON LINEN.

WE have no doubt that many of our readers have already seen the letters which have recently been published over the signature of General Duff Green, addressed to the Secretary of the Treasury, in several of the leading papers of the country. But the views which he presents are so clearly expressed and so forcibly advocated, that we are very desirous of spreading the substance of them, at least, on the pages of our journal. Were they not so widely circulated already, we should be unwilling to erase a single paragraph. But under the circumstances here explained, we must be content with the following. The proposal to repeal the duties on flax and linen fabrics, was the immediate cause of this argument. The first point urged, it will be seen, is identically the same which we have ourselves urged in a recent number:

"It may be said, and I presume it will be urged, that as Great Britain has so much capital invested in the manufacture, it will be for our advantage to furnish the raw material, in exchange for her manufactures. I know there is a class of political economists, who argue that England cannot buy from us unless we buy from her, and therefore insist that British manufactures be admitted, at a low rate of duty—and that linens be admitted duty free. This may be true in theory but not in fact. If England and the United States were all the world, there would be much force in the argument. But the fact that Great Britain purchases from Russia and the North of Europe thirty-millions of dollars' worth of flax, hemp, linseed and oil cake, and that Russia and the North of Europe refuse to take her manufactures in exchange, proves that if we will sell to Great Britain hemp, flax, linseed and oil cake, at as low rates as they pay for it elsewhere, then Great Britain will purchase from us, whether we take her manufactures or not. So that this argument fails because the hypothesis on which it rests is not true.

But I meet this doctrine of free-trade and no duties boldly, and look it directly in the face, and say that that which was at one time wise and proper may be very unwise and improper at another, and that that policy which is wise and proper for Great Britain may be most unwise and improper for us.

I proceed to illustrate. It is well known that I was for many years a disciple of Adam Smith—that I advocated the policy of buying in the cheapest and selling in the dearest market. I was the advocate of free-trade. In 1836, I retired from the press. I was, nevertheless, an earnest and anxious observer of passing events. Being withdrawn from the excitement of party politics, I saw that the customs involved something more than the mere question of revenue, and that the currency had much more effect on prices than the tariff. I saw that ours was the weaker part of the British system, and that there was a power connected with the Bank of England, and the London Exchange, which transferred the effects of their overtrading and

speculation, causing the explosion to take place here instead of in London; and I spent the greater part of 1842 and 1843 in London, investigating and accumulating facts on which I could make up an opinion. I found that the funding system had created a new power, by concentrating in the hands of a few leading bankers, who were the agents of the monarchies of Europe, for the sale of their securities, and of the principal fundholders, to receive and reïnvest their dividends. I found that these dividends, thus concentrated in the hands of a few individuals, and payable chiefly in London and Paris, were more than two hundred millions of dollars per annum; that the greater part of this funded debt bore an interest not exceeding three or four per cent., and that when Mr. Jaudon went to London, as the agent of the Bank of the United States, with some thirty millions of dollars' worth of American Securities, bearing an interest of six and seven per cent., these bankers, so much interested in maintaining the value of the funded debt of the European monarchies, saw that if he was permitted to establish a market for the sale of American six and seven per cents., in competition with their European three and four per cents. the holders of the European debt would exchange their three and four per cents for American six and seven per cents.; and that the inevitable consequence would be the overthrow of the existing European monarchies. They therefore combined, and by preventing a sale, and compelling Mr. Jaudon to hypothecate his securities, used up and broke down the Bank of the United States. The war upon the credit of the States and of the Federal Government was part of their system.

Until then, our merchants bought British goods on credit, and paid for them in the proceeds of our agricultural labor. Then these large bankers revolutionized the whole machinery of commerce, and since then have levied heavy contributions upon us, in the shape of interest upon *their* credit, *profits upon our capital!* and upon the exchanges.

The more I examined into this subject, the more I became satisfied that the real issue between the monarchies of the Old World, and the Republicanism of the New, is financial; and that instead of contending with the North about the tariff, it is the interest of the South to unite with the North and West, to sever the cord which binds us financially to the Bank of England. Why is it that an Englishman's credit is worth more in New-York than an American's gold? Why is it, that while the rate of interest is less in London than in any other part of the world, exchange upon London is everywhere at a premium? Is it not because all the rest of the world is in debt to London, and that the London bankers have so organized the machinery of commerce that every body must go to England to sell as well as to buy?

I boldly assert, and challenge investigation, that the South loses much more by placing her cotton under the control of British agents than she would lose if the tariff were doubled. Let me not be misunderstood. I am not the advocate of a high tariff. My wish is to cultivate and economize our resources, so that we may have, within ourselves, the means of giving profitable employment to our people. My wish is to stimulate American industry, and economize American enterprise, by adopting that position which tends to strengthen most our financial position. I see in the new development of the hemp and flax culture, an element of great financial power, adding, as I believe it will, in a few years, an export equal in value to the cotton crop—stimulating and aiding, as it will do, our system of internal improvement—bringing into profitable culture hundreds of thousands of acres of new land, and bringing into use many acres of land in the Northern and Eastern States,

which can no longer be cultivated for wheat because of the weevil, and the exhaustion of the soil. It should be borne in mind that the dividends arising from the funded debt of the monarchies of Europe is a tax levied upon the industry of her population, as the interest upon the sum expended in wars, and in the maintenance of armies, navies, and privileged persons, and that this debt may be extinguished by a revolution; while we have some seventeen thousand miles of railroad now in operation—that we have some thirteen thousand more in progress of construction, and that a few years will more than double the capital thus invested; that while the European debt is consuming the substance of an over-burdened people, every dollar properly expended on a well-located railroad may be estimated as adding ten dollars to the wealth and resources of the country, and that persons having money to invest will see that our railroad securities are a much better and safer investment than the credit of any trembling European monarchy. Under such circumstances, we may well anticipate that whether Europe be involved in a general war or not, large sums will be remitted to the United States for investment, and that the consequences must be, that if the culture of flax and hemp increases, as I believe it will, the increased value of property, the dividends on the capital invested in railroads, the product of our mines, the large amount of foreign capital seeking investment, and the export of flax, hemp, and cotton will so augment our resources as to make us financially independent; and yet it may be that the repeal of the duty on linen fabrics may so discourage the culture of flax and hemp as greatly to diminish the product and delay the consummation of this great object.

Permit me to conclude, by earnestly entreating you to consider this subject as an enlightened American statesman, discarding theories generated in party prejudice, and remembering that the funding system has organized the taxing power of the European monarchies, which is so concentrated in the hands of a few European bankers, (who are the agents of those monarchies for the sale of their credit, and of the principal fund-holders to receive and reïnvest their dividends,) that they are enabled, through those governments, to tax directly the labor and property of the people of Europe, and that they have likewise so organized the machinery of credit, of commerce, and of currency as to impose most onerous burdens indirectly upon the people of this country. That this organization is a new power, originating in the public debt of the European governments; that it has so increased in strength and consolidation, that it is stronger than the monarchies which created it; that strong as it is, its vital principle consists in the power of the monarchies of Europe to tax their subjects, and that, therefore, being monarchical in its origin and in its existence, all its sympathies are monarchical and anti-republican; that the funded debt represents the sums expended in wars, and in the maintenance of armies and navies and privileged persons, and has no value except as the pretense upon which the people of these governments are taxed to pay the interest; that in case of a conflict between the people and the monarchies of Europe, this *new power* will take part with the monarchies against the people, because, so long as the monarchies exist, it can compel the monarchies to tax the people; and it knows full well that if in a revolution the people prevail, there is great cause to apprehend that the funded debt will expire with the monarchies, and that then their organization, now so potent, must cease. Sympathizing then, as this potent organization does, with the monarchies of Europe—deeply interested as it is in maintaining the prestige of their governments and authority, its sympathies and instincts are opposed to our republican institutions, and hostile to the development of our energies and resources.

Yet, opposed and hostile as it is, it comes to us in the guise of friendship, acting through such of its numerous agencies as can best accomplish its purpose. Thus, when the purpose was to destroy the Bank of the United States, and thus extinguish its agency in sustaining American credit, it was impossible to sell the bonds of the general government in the London market. Yet, that purpose being accomplished, we find that a large amount of our public debt is held in London, and that while the bonds of many of our first railroad companies are forced upon the market, at a great depreciation, you are purchasing up, from these foreign creditors, the public debt, long before it is due, and paying them a premium of twenty-one per cent.!! Believing as I do, that the policy of these European bankers is to so regulate the machinery of credit and of commerce, that we shall be compelled to buy more from England than she purchases from us, and that so far as relates to our commerce with England, they deliberately make false the theory that commerce is a reciprocal exchange of the products of industry, by so expanding or contracting credit and currency as to depreciate the value of our credit and of the products of our labor in the British market, as at all times to create a balance against us, I am rejoiced in the hope that the rapid accumulation of capital in the United States, in the shape of dividends and profits upon current investments in railroads, agriculture, commerce, and manufactures, will create an American, *republican*, financial organization, less concentrated but stronger than this colossal *monarchical* power, because its revenues will be greater, more certain, and permanent. Its elements will be more diffused, but it will be so united in sympathy and interests, and so intimately connected with our credit and currency that its energies and resources can be easily rallied to protect us against the expansions and contractions which it is the policy of the London bankers to create, and which will be inflicted upon us so long as they are permitted to so regulate the value of our credits and agricultural produce as to leave a large balance against us.

In conclusion, permit me further to add, that it is said, upon what appears to be good authority, that the greater part of the 500,000 spindles in Ireland are owned by six individuals; that the linen manufacturers of Great Britain are among her most wealthy and influential capitalists; that they have enlisted the active coöperation of the British government, and of the British Minister, at Washington; that they have agents in Washington, who employ the press, and penetrate both Houses of Congress. They have enlisted your potent influence, and the Committee of Ways and Means, acting under your advice, have reported a bill in accordance with their wishes. I again appeal to you, as a patriot and statesman, as a citizen of a State in which hemp and flax are staples, to reconsider this subject, *for upon you rests the responsibility.* If you give the facts a careful consideration, you cannot fail to see that your recommendation was erroneous. Are you capable of seeing your error, and confessing it? If you are, many will rise up and call you blessed; for in that case the movement in the culture and manufacture of flax and hemp will be such as to give profitable employment to many thousands of our people, and will so augment our wealth and resources as greatly to aid in relieving us from those periodical contractions and expansions of credit and of value, which are the consequence of the causes that I have endeavored to elucidate."

Again he says in another letter,

"The Constitution gave to Congress the exclusive power to coin money and regulate the value thereof. And why? The purpose of government is to protect persons and *property*. As specie is the standard which regulates

the value of property, the wise men who framed the Constitution well understood the necessity of giving a fixed value to the precious metals; and hence, they recognized the power to coin money and *regulate* its value, as one of the highest attributes of sovereignty. They had denied the right of the British parliament to tax the colonies, because they well knew that the power of taxation includes the power to appropriate the products of industry. So jealous were they of the rights of property, that they denied to the States the power to regulate the value of money, and gave it expressly to Congress. It thus becomes the duty of Congress not only to coin money and regulate its value, but so to regulate our intercourse with foreign nations as to prevent, as far as practicable, any foreign power from disturbing the values regulated by them. For it is preposterous to suppose that the Constitution made it the duty of Congress to regulate the value of money, and at the same time denied to Congress the power to protect the value thus regulated against the financial policy of foreign nations; that it gave to Congress alone the power to coin money, and forbade the States to regulate its value, and yet left its value subject to the caprice, the speculations, or policy of foreign nations, or of their financial agents. If, then, it is the duty of Congress to regulate the *value* of money, and the European funding system has created a power which, acting through the Bank of England, can regulate the value of money by diminishing the value of our credit, and reducing the price of the products of our labor, it must be the duty of Congress to protect us, as far as it can be done, against the periodical contractions and expansions of the currency, which is, and ever must be, the inevitable consequence of the foreign policy of the European funding system and its agents.

We have no protection but through Congress, and Congress has no power to act but through the tariff. It will thus be seen that the real question involved in the tariff is not so much the protection of American industry against competition with the cheaper labor of Europe, as the protection of the value of our money against the fluctuation which is the inevitable consequence of a control over commercial exchanges, and the manner in which the power, created by the funded debt of Europe, is used to maintain at all times a commercial balance in favor of England—and while I admit that Congress has no power to make a tariff for the purpose of fostering or protecting one class of American industry at the expense of another—or for the purpose of creating a surplus revenue, to be expended in works of internal improvements, I insist that it is the duty of Congress to so regulate our foreign commerce as to protect the value of our money, and the price of our property, and of the products of our labor, from the periodical contractions and expansions which it is the purpose and policy of the agents of the European funding system to create; and which are periodically produced, because their system is to buy at low rates when money is dear, that they may sell at high rates when money is cheap.

How can Congress do this? Will Congress regulate the value of money if they so arrange the tariff as to greatly augment the imports of linen fabrics? Will not the increased importation increase the power of the Bank of England to act upon our currency? Can Congress rightfully transfer to the Bank of England, or to the agents of the European monarchies, the power to "regulate the value of" our money? If the repeal of the duty on flax and linens will have that tendency, is not that fact an imperious reason why it should not be done? To press this argument further, would assume that you are incapable of seeing, or unwilling to admit, its truth. I therefore again recur to the question of profits.

Mr. McAdam tells us that such have been the profits on the manufacture of flax, that the single town of Belfast has, within a few years, invested in works of public improvement alone, near *nineteen millions* of dollars! Who paid those nineteen millions of dollars? The consumers. Who were the consumers? We, the people of the United States! Now, as it is well understood that every dollar properly invested in a well-located railroad adds ten dollars to the value of property, therefore, if instead of importing linens from Belfast, we had made them for ourselves, and having saved the nineteen millions of profit, we had invested that sum in American railroads, instead of sending it to Ireland to enrich the manufacturers of Belfast, the difference to us would have been one hundred and ninety millions of dollars; and instead of sending the products of our labor abroad, that it may become an element of power and influence in the hands of those who, through the exchanges, regulate the value of our money, *up* or *down*, as they wish to buy or sell, we would to that extent have added strength to our financial position. It is thus, and thus only, that we can become financially independent, and until this be accomplished, it is impossible for Congress to "*regulate* the value" of money.

Do you ask how else you are to prevent a surplus revenue? I answer that Congress has monopolized the transportation of the mail; that the department is compelled to employ railroads in that service; that the present disbursement is near two millions of dollars, and that it will soon be twice that sum per annum; that two millions is the interest at six per cent. on thirty-three millions of dollars; that instead of paying this sum to railroad companies on contracts to run for four years, I would make contracts for the permanent use of railroads, and deliver to them bonds, chargeable upon the revenues of the department, bearing *three* per cent. only, for an amount the interest on which, at six per cent., would be an equivalent, under the present system, for the service rendered. Under this change of system, the saving would be one half the sum now expended, or one million of dollars, which, compounded at six per cent., would, in less than twenty years, pay off the whole debt, and give to the government the use of such railroads for ever thereafter without charge."

GEOLOGY.—COAL FORMATIONS, &c.

In our last number, under this title, we illustrated the geological arrangement and the production of coal measures. We now come to speak of them in connection with the strata that lie above them, and which must be regarded in all mining operations. But ere we advance, let us remind the reader that, beginning from beneath, we have found, thus far, the silurian, which is divided into lower and upper; the devonian, which is also both lower and upper; and then the carboniferous, consisting of the mountain limestone, and upon which rest the coal measures.

Next above the coal is the Peruvian group, consisting (the lower Peruvian) of the new red-sandstone, which underlies marl slates and magnesia, limestones, &c., forming the upper Peruvian, and we thus reach the upper limits of the primary formations. Ascending still higher, we meet with the lower middle and upper *trias*, then the *lias*. The former of these consists of various sandstones, limestones, dolemite, gypsum, marls of various kinds, as red, gray, green, blue, and white, while the lias contains argillaceous limestone, marl, and clay.

The fossils which occur in the lower trias group are plants of peculiar species, not found in the upper trias; in the middle strata, the equisetites or order equisetaciæ, and calamites, or the rush tribe, while the upper strata contain batrachian reptiles, ferns, coniferæ, cycades, &c. In the argillaceous limestone of the lias are reptiles, mollusks, and several genera of fish, which also extend into the group next above.

Oolite. This group is above the lias, and consists of yellow sands, calcareous freestone, fuller's earth, sundry slates, Oxford and other clays, Portland sandstone, &c. Its fossils are ammonites, and belemnites, saurians, the plerosaurius, and other reptiles nearly allied to them. These slates are very rich in fossils, among which are also insects, including some of the beetle tribe, with some mammiferous fossils. The wealden group, underlying the cretaceous, lower and upper, complete the SECONDARY FORMATION.

But we begin to fear that our descriptions are becoming too extended. We dislike dry details in any department of science. We have had far too much of them, in times gone by, either for the pleasure or the profit of the learner. Let us, however, ere it passes from our thoughts, inform the reader, who may have an opportunity to avail himself of the hint, that in the Austrian department of the Crystal Palace are some of the finest ammonites we have ever seen. They are a fawn-colored marble, somewhat variegated. The largest are some twelve or fourteen inches in diameter, while other specimens do not exceed four or five inches. The latter compare very nearly, in dimensions, with those found in one or more of the islands in Lake Champlain, which are formed of a dark-colored marble, and are very abundant.

Should we continue our dry description of the remaining strata which are embraced in the eocene, miocene, and pliocene groups, of which the TERTIARY formation consists, and which rest beneath the only remaining group, the post-tertiary, which is divided into the post-pliocene, and the recent, we should reach the surface; but the view would be very imperfect without numerous details, with which we dare not, at present, challenge the attention of the reader. We must lead him through more inviting fields, else, as we pile strata upon strata, in our fast-multiplying rows of type, we destroy the little sympathy the reader may have in the subject, and deter him from any further examination of it. Thus our ill-formed devises, intended to lead to more thorough investigation, may produce effects entirely opposite. Beside, we do not hesitate to admit that we write that we may be read. Writing *not to be read* is a most stupid business. We pity the minister who writes his sermons under the conviction that his audience will not listen with interest to their delivery. Besides the interest which miners have in this subject, which we purpose to consider, there is also taken an AGRICULTURAL VIEW.

To the agriculturist, each of these formations has an interest of its own, whether it be attractive or repulsive. Thus the lower silurian, which consists of a mass of sandstones, often many thousand feet in thickness, is generally entirely naked, where it crops out to the surface, or at best, it furnishes a thin cold soil, capable of supporting only heaths and kindred vegetation. The limestones beneath these rocks are far richer. The upper silurian produces a cold, wet, unmanageable clay. The old red-sandstone soils are much more valuable. The soil of the middle oolite consists of a dark-blue, adhesive clay, rich in lime, and well suited to cultivation, though often difficult to work, being very adhesive in wet weather, and very hard when dry. The lias forms a cold, unproductive, blue clay. The wealden formation produces a hard, dry soil, but when properly drained and cultivated forms good wheat land.

Wherever the chalk formation is exhibited, we find a dry, parched soil. This is witnessed in Alabama, for example, where it is difficult to get a sufficient supply of water, and, as we have described in former numbers of our journal, the people resort to artesian wells, which are sunk five or six hundred feet, and often to a much greater depth.

We may follow along from the sea to the interior, and find, with changes of the geological formations, as many changes in the character of the soils, and the crops that can be produced. Thus, taking the region of the Southern States, we first find low and swampy land, but rich soil, (post-tertiary and alluvial,) which will produce good crops of cotton and rice. Receding from the sea, and rising above its level, we find a harder, dryer soil, but still alluvial, consisting of both loams and clay, in which the oak and hickory grow spontaneously. Here we also find good crops of tobacco, sugar, &c.

On the next higher level in the tertiary formation, is the region of dry sand, stocked with pines and kindred growths. Above these are the chalk formations, nearly barren, and then the slopes of clay and loam, variously mingled, and suited to a variety of crops. This is at the termination of the plain, and the commencement of the slope of the Atlantic. The last formation only belongs to the primary formation.

It is within basins formed along the extent of the Alleghanies, that the coal beds are formed; and extending beyond the summit of the mountains, and far on to the West, "the Appalachian coal field" spreads out, with an inexhaustible supply of mineral wealth. In Ohio, in the region of Cincinnati, the silurian rocks again develop themselves, interrupting the beds of coal, but beyond this, toward the Mississippi, the surface is again depressed, and we find the immense coal field of Illinois, &c.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

INDIAN-CORN OR MAIZE.—ITS HISTORY, GROWTH, &c.

BY G. BLIGHT BROWNE, OF PENNSYLVANIA.

Among the class of farmers who devote their attention to the cultivation of corn, it has become a question, as to whether or not suckering should be encouraged, or considered as an injury to the crop. Advocates of both sides of this question have presented themselves, and have sustained their peculiar views with considerable plausibility. But thus far, I have not seen any article on the subject, in which the writer has sufficiently well based his argument on the nature and physiology of the plant itself.

Without going into the classification of this plant, by Linnæus, or by any other founder of an artificial system of botany, I will proceed to consider the construction, habits, &c., of the zea mays, maize, or Indian-corn.

This plant is a native of America, and, properly speaking, belongs to the tropics. It was, however, described as growing in the temperate zones, near the tropics, by the earliest historians on the subject. It is an annual and endogenous. Maize is physiologically constructed to endure great heat, and to resist evaporization.

In the tropics, during the hot and dry season, vegetation undergoes a species of hybernation, and awakens with the approach of the wet weather. So soon as the earth obtains sufficient moisture, the seed of this annual vege-

tates, but in a way well adapted to resist the heat of the climate. For instance, when a grain or seed of maize receives sufficient moisture, it commences by exhibiting signs of germination, by throwing out roots and stem; but the roots will far outstrip the stem in growth; in fact, the roots will attain great length before the cotyledons will appear above the ground. By this means, the plant is well fortified with an abundant supply of moisture or sap-bearing roots, before it ventures to show its stem to the sun. The cotyledons make their appearance enveloping one another, and the stem is fortified with a glazed surface, through which very little liquid can evaporate. The stem is composed of cellular tissue and spiral tissue, and does not become woody.

This plant is capable of projecting shoots from each joint or node, and these shoots bear the ears of corn. These shoots are by some (I think improperly) called suckers. From the summit of the stem is projected a stalk, which is crowned by a tassel, or the male organ of reproduction. Embryo ears are formed, and put forth their silk at the same period that the tassel makes its appearance. It is rare that more than the two uppermost nodes, or those situated immediately below the tassel stalk, put forth any silk, and those situated lower down usually show at this stage that they are abortions. No doubt more of the nodes would put forth true fruit, if the plant was capable of perfecting it, and such is sometimes the case in the colder climates; but, often in the warmer latitude, plants have been known to produce seven perfect ears. Some twenty years since, a Mr. Baden, in Maryland, had corn that produced from four to seven ears on a stalk.

The female organ or pistil protrudes itself at the apex end of the ear, and is called in familiar language the silk. Every grain on the ear has one of these fibres of silk communicating with it. This silk is all produced at the same time, and at a proper time to be impregnated by the pollen falling from the tassel. If any ear should mature its silk too late for the pollen, (a case which I can not conceive to happen without some disturbing case,) it will not bear any fruit. At the lower extremity of the silk is the ovule, and it is fertilized by the pollen passing down to it through the cavity in the centre of the silk. The ovules, after being fertilized, become miniature plants, consisting of root, stem, and leaf. These ovules thus matured are accompanied by a deposit of starch, and the whole enveloped in a glaze covering, constitutes the grain. The grains occupying the apex extremity of the cob have, notwithstanding they are generally somewhat smaller, been fertilized quite as early in the season as any of the lower ones. They owe their diminished size to a want of supply from the mother plant. Sometimes this want of supply will occasion not only the superior grains to be smaller, but will occasion them to dwindle away entirely. This want of supply is not occasioned by any sterility of the soil. Any soil capable of affording to the plant the means of producing the stem, tassel, and silk, will be able to continue its bounty until full development. This defect in the superior portions of the ear is occasioned by the climate, which, in such cases, has proved at the latter portion of the season unpropitious for the growth and maturing of the seed.

Suckers (properly speaking) take rise from the stalk below the ground, and are capable under some circumstances to become complete plants, producing stalk, tassel, and silk; and, no doubt, if the climate would favor the enterprise, would bear ears. In the natural climate of the maize, grown on a soil undrained of its fertility by husbandry, and in the natural state, unimproved by cultivation and art, it may be able to furnish to this sucker, or second growth, sufficient nutriment to bring it to maturity. But in our climate, and

limited by one short season, no such result must be expected. Maize has been by cultivation much enlarged in the grain, and greater number of grains are found on the cob of our cultivated varieties, than originally grew on the natural plant. The great desideratum of the Northern farmer is to make his corn in the allotted time, and to have his crop well matured before our early frosts. We have usually no time to lose, and there can be no doubt that any treatment which would retard the maturing of the ear, would not be a good one.

Shoots from the nodes above ground can not do much, if any harm, to the plant, because they are soon arrested in their growth. The stripping of these shoots will occssion a very bad wound, and is calculated to do more injury than good.

The case is very different with the under-ground shoot or sucker. They derive their sap from the roots of the parent plant, and consequently divert the supply, at a moment when it is most needed to assist in procreation, then going on in the parent plant. Nothing should be allowed to interfere with this function, as the early maturing of the seed depends on the vigor with which this process is prosecuted.

Therefore, on the whole, I should conclude that the shoots or suckers which start from the nodes above ground, should not be removed; and that those which have their origin below ground should be removed.

AMERICAN WOOL.

The British Commissioners of the Great Exhibition of 1851, have determined to form, in London, a grand universal trade-museum. Mr. Solby, their agent, has applied to Mr. P. A. Browne, of Philadelphia, to ascertain how they will be able to procure for it all the leading varieties of the best American fleece; and Mr. Browne has recommended this direct appeal in their behalf to the sheep-breeders and wool-growers of the United States. Any one disposed to countenance this laudable design will be pleased, with as little delay as possible, to forward specimens to Mr. Browne, post-paid.

Each sample ought to be accompanied with the name and address of the donor, and also of the breeder, where he is not the donor; the name of the species, variety, or breed of both parents or ancestors of the animal from which the specimen is taken; the age, sex, probable weight, and amount and date of last clip, and the number of the flock to which he belongs, &c. All specimens, when practicable, should be *drawn out*, (not cut,) and be taken from the back, six inches in the rear of the neck.

Editors of agricultural periodicals and of newspapers are respectfully requested to insert this notice.

Time for Grafting the Apple.—The best time is the spring, when the buds are beginning to swell, the scions for grafting having been cut a few weeks previously, and kept in a moist, cool place, or in a box of damp moss, in a cool cellar, so as to be neither shrivelled nor water-soaked. Grafts may be cut and inserted the same day, if the buds are not swollen much. Grafts are sometimes set much later, but starting so late, they do not make so good a growth during the summer.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

A MISTAKE.—SOUTHERN PLANTER.—GYPSUM AND AMMONIA.

MESSRS. EDITORS: If there be such a personage as a Professor Campbell, in North Carolina, who is in the habit of writing for agricultural journals, he would doubtless be surprised as well as amused, on reading the 464th page (February number) of your paper, to see the use there made of his name. The paragraph there given, detailing an experiment to show that carbonate of ammonia and gypsum mutually decompose each other, the ammonia being "fixed" as an involatile sulphate, seems to have been copied by the *New-England Farmer* from the *Maine Farmer*, but appeared originally in the *Southern Planter*, for June, 1853.

As the article from which this extract was taken has been considered of sufficient importance to be copied, in whole or in part, by several papers in this and other States, I see no reason why it should be attributed to an authorship which probably has no existence. The substance of this article formed part of a lecture on the chemical relations of different fertilizers, delivered before a class in Washington College, Virginia, in the course of scientific agriculture, as taught in that institution. By an awkward mistake, the printer, instead of W. C., (Washington College,) put N. C. In the summary of "contents," it was printed in full, "N. Carolina." But, as the editor of the *Southern Planter* lives about seventy-five miles from the office through which that paper is issued, he knew nothing of the mistake until the paper had been published. He made a very satisfactory apology for the error, in a private letter, promising at the same time a "correction" in the succeeding number; but the correction never made its appearance, and moreover, the mistake reäppeared in the index at the end of the volume. Of course the matter was forgotten by the worthy editor.

The experiment above alluded to was fairly performed, but can hardly be considered as conclusive evidence that dry gypsum will act upon ammonia, since the manure used was moist, and, therefore, soon moistened the gypsum mingled with it. But there was certainly not moisture enough present to dissolve the gypsum. Other experiments have confirmed me in the belief that ground plaster affords one of the most convenient, as well as most effectual means of "fixing" (that is, decomposing) the carbonate of ammonia, generated in fermenting vegetable and animal manures. The presence of moisture is certainly advantageous in this as in most other cases of chemical action; but there is no necessity whatever for having the gypsum in a state of solution. On the contrary, I think this would result in a disadvantage, from the large quantity of water required to dissolve it; the proportion being not less than about five hundred parts of water to one of gypsum. If, in this condition, a sufficient quantity were used to answer the purpose fully, a portion of the resulting sulphate of ammonia would undoubtedly be washed out and lost. The moisture always present in manure collected from stables and barn-yards, if sufficient to cause fermentation, will also be sufficient to promote the required chemical action between the plaster and carbonate of ammonia.

When gypsum is used for fixing the ammonia of guano, the mixture should be moistened; otherwise, the chemical interchange of elements will go on very slowly. Ashes should not be used with the plaster when mixed

with guano, as the carbonate of potash in the ashes would reduce a portion of the plaster to the carbonate of lime, which does not act upon the salts of ammonia under ordinary circumstances.

Yours very respectfully, J. L. CAMPBELL.

Laboratory of Washington College, Lexington, Va., February, 1854.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MR. GLOVER'S MODELS OF FRUIT.

During a recent visit to the city of Washington, for the purpose of attending the meetings of the United States Agricultural Society, I was much delighted with the collection of models of fruits, &c., belonging to, and manufactured by, Townsend Glover, Esq., of Fishkill Landing, N. Y., and now at the Patent office.

This collection exhibits in the most beautiful manner, and with inconceivable accuracy, at one view, specimens of the various cultivated and natural fruits of the United States. To each specimen is attached a label, describing the taste of the flesh, habit of the tree, time of ripening, and the soil and climate best adapted to each variety.

By inspection of these models, true to life, the farmer or horticulturist has it in his power to select such fruit as he shall most fancy the appearance of, and is enabled to judge for himself whether, as to the soil and climate, any particular kind is more or less adaptable to his own locality. The same fruit grown on different soils, and in different climates, is here exhibited, and in many instances would not be recognized as being identical in stock; and, in fact, it has often, from this cause, received new names to which it is not entitled.

Accompanying these models of the fruits, are also to be found fac-similes of the new wood on which each specimen was grown, and in many cases the blossoms are also included.

Mr. Glover has also numerous reptiles and fishes, modelled with equal merit; and the whole has such a life-like appearance, that one can scarce believe it is not real.

Mr. Glover is desirous to have the aid of government to complete this arduous task, so far prosecuted at his own expense; and when completed, to deposit it at some suitable place at Washington. If the general government should refuse to aid him, I would propose that a company should be formed in New-York, who would be willing to aid him to completion, and that the work should be deposited in that city. In one season, the exhibition of such a collection would reïmburse the expended money, and New-York would have one more gem in its diadem.

Such taste as Mr. Glover has exhibited, in this his *chef-d'œuvre*, is seldom found; and if ever completed in its details, his collection would grace the shelves of any scientific museum. It is sincerely to be hoped that he will be encouraged as he deserves, and that the country may not be bereft of such a gem for want of the small sum necessary to finish a work so far advanced toward completion. G. B. B.

We have seen the models of Mr. Glover, and have always admired them. It is impossible to distinguish many of them by the eye from the true fruit. We commend them, and our correspondent's proposition, to the attention of all fruit-growers.—EDS.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CIRCLING LAND.

If the restoration of worn land is so important and so economical as to justify heavy investments in chemical properties, brought by great labor and heavy expenses from far distant countries, how much more important, and how much more economical, to retain those chemical properties which have been placed in the soil by the hand of a kind Providence, when the expense is comparatively nothing! Even with the heaviest outlays of capital in chemical properties, the upland, in the *cotton* region, can not be kept profitably productive unless the land is so cultivated as to retain them. Ploughing commences in January, and is finished in August. During this long period, the land is ploughed five or six times, and is drenched with rains again and again. And he who undertakes to keep upland, in the cotton region, profitably productive by investing his money in chemical properties without using the precaution to retain them, almost as vainly toils as did the Danaids to fill their sieves from the waters of the Lethe. As indispensable as guano, cotton seed, pea-vines, muck, or manure of some kind may be, in keeping upland profitably productive, yet neither can be profitably used by the cotton-planter after a few years' cultivation, unless his land is so circled as to prevent the soil from washing away. Circling not only prevents the soil from washing away, but it causes the land to stand a drought much better than when the rows are straight. No planter will require that these assertions should be established by argument. He knows a heavy rain runs so rapidly down straight rows as to wash; and a moderate rain, after drought, passes off so soon as not to be taken up by absorption. The only question is as to the best instrument for circling, the manner of using it, and the best fall to give the rows.

When I tell the reader of *The Plough, the Loom, and the Anvil* that it must be done scientifically, he will acquiesce with me. The only instrument that should be used, is the engineer's level. It is perfect. Many instruments are used, and any in use will do some good, but not one will compare with it. Any one who will read this, can use it in circling as well as the most accomplished civil engineer. There is nothing about it difficult to comprehend. The level sometimes gets out of adjustment, but not very often. I will therefore first give the directions for adjusting the level.

1. To fix the intersection of the cross-hairs in the axis of the telescope, loosen the straps over the telescope; place the cross-hairs on a small object; turn the telescope half round in the half circle in which it rests, and move the cross-hairs by the four capstan-headed screws on the telescope; loosen one screw and tighten the opposite one; do so until the intersection of the hairs remains on the same spot, when the telescope is turned in the half circles in which it rests. Next, place the horizontal hair upon an object; lift the telescope out of the half circle in which it rests; reverse it; then turn it upon the tripod; see if the hair comes on the same object; if not, raise or lower one end of the telescope by the nuts on the lower part of the half circle in which it rests, until it will reverse upon the same object.

2. To adjust the spirit-level with the cross-hairs in the telescope, bring the bubble in the centre by the four leveling-screws of the tripod; turn the instrument half round on the tripod. If the bubble does not remain in the centre, raise or lower one end of the tube containing the spirits, by the nuts

at the ends of it, until the bubble will remain in the centre when the instrument is turned on the tripod.

In order to circle correctly, you should examine the land well, by riding or walking over it before commencing, observing the ridges and natural drains. The water must be made to run gently to the natural drains, the fence, if you have it on the line of your land, or to a road, if you have one through your land. To draw the water to the natural drains, commence the row at the natural drain, and let it rise one foot for every hundred yards, and if the land is broken, a little more. When one half the length of the row is run, let it fall in the same ratio until it empties into the natural drain at the other end. If the land is broken, lay these rows off twenty yards apart; if the land is moderately undulating, they may be laid off thirty yards apart. The water may be drawn to the fence if it is on the line of the tract, or to a road if there is one through it. This, however, should not be done if it can be avoided, as it will wash a ditch by the side of the fence, or wash the road, and gradually wear off the ends of the rows. I have advised to commence at the natural drains, but in a few days you will understand the use of the instrument so well that you may commence on the ridge, or on the side of the ridge, and let the rows rise or fall as you like. I have told how the rows should run; now I will tell how to run them. Get a flour-barrel of wooden pins as large as a finger, eighteen inches long, and pointed at one end. Have a small line twenty-eight feet long, with each end tied to a pin. Let your target be a black circle, six inches in diameter, with two white lines a half inch wide passing through the centre at right angles. The target-rod must be eight or ten feet long, with inches marked on it the entire length. Have two boys, and you are ready to commence. Let one boy take the target-rod and one end of the line; the other boy an armful of pins and the other end of the line. Place the boy with the target-rod where you intend to commence the row, and place the instrument on ground a little lower, judging by the eye; then level the instrument. To level the instrument, stick the feet of the tripod firmly in the ground; turn the telescope until it is over two of the leveling-screws; tighten the one and slacken the other until the bubble remains in the centre of the tube; then turn the telescope until it rests over the other two leveling-screws, and level again, and so on, until the instrument is level. The instrument may be placed from ten to three hundred yards from the target.

Adjust the focus of the telescope to the distance by moving the large glass in or out with the screw which moves it. Let the boy with the target-rod move the target up or down on the rod until the cross-hairs in the telescope rest on the white lines on the target. Let him then stick the pin, with one end of the line attached. If you intend that the row shall rise from the starting-point, let the boy move the target one inch down on the target-rod, and take the pin with the other end of the line attached, and move the length of the line, and move up or down until the cross-hairs in the telescope again rest on the white lines on the target. Let the boy with the pins stick a pin at the starting-point, bring up the other end of the line, and stick the pin attached to it at the foot of the target-rod, and another pin by it. Let the boy with the target-rod move the target down another inch, and move as before the length of the line, and up or down, until the cross-hairs in the telescope rest on the white lines on the target; and let the boy with the pins do as before. Go on in this way until you wish the row to fall the other way; then move the target up every time instead of down, and instead of rising the row will fall. You may have the level to move before the row is

finished; then move it as you like from ten to three hundred yards, and place it on ground a little lower than that on which the last pin is placed, judging by the eye. It may be placed on higher ground, but you circle more rapidly when it is placed on lower ground, with the sun shining on the white lines of the target. When you have leveled the instrument, let the boy move the target up or down on the target-rod until the cross-hairs in the telescope rest on the white lines of the target, minding to keep the foot of the target-rod by the last pin that is set, and then go on as before. Divide your row so that the highest point in the row shall be equally distant from the two ends. When you have finished the row, go from one end to the other with a boy, and when you perceive a pin that would make too short a curve, move it up or down, so as to preserve the grade of the row as much as possible, and at the same time to make the curve more gradual. When you have laid off several rows, have the pins ploughed up with a light shovel with a cutter before it, by your best plough-hand, with a single mule that does not walk too fast. These rows thus laid off with the level are base rows. Fill up the space between the base rows thus: Let your plough-hand begin on the lower side of the base row, and lay off rows parallel with it, until the space between it and the base row below is filled up. Then your short rows will all fall on base rows. When you have finished laying off, run a turning-plough three or four times on the upper side of the base rows, taking a little land only. Let the hoes follow, the hands moving on the lower side of the base row, and draw the dirt out of the furrows run by the turning-plough, so as to make a ridge eighteen inches high on the lower side of the base rows. Your base rows then become hill-side ditches.

In laying off the rows between the base rows, it is best to have a small boy, with a rod, tied to the bridle of the mule, of such a length that when he holds the rod to his breast, and walks in the row that is laid off, the row that is being laid off will be at the distance wished. The length of the rod is about equal to the width of the row.

I was once much embarrassed to replace the cross-hairs in the telescope after they had disappeared; but necessity was the mother of discovery. If the cross-hairs should be destroyed, unscrew the large glass and take it out; unscrew the small straps which attach the large screw to the instrument that moves in and out the large glass; unscrew and take out the screws which adjust the cross-hairs; turn the large end of the instrument down, and a brass circle will fall out, to which the cross-hairs were attached. The circle has drawn across its face four lines equally distant. Remove the paste, and take a spider's-web and place it across the circle, letting it lie in the lines; attach it to the circle with paste, and then you will have the hairs crossing each other at right angles. Return the circle to its former place by moving it up the telescope with a round rod, and turning it until the screws will confine it. Put the instrument together, and adjust it by the directions.

A PLANTER.

Yazoo Co., Miss., February, 1854.

P.S.—The line twenty-eight feet long will give about a foot fall to the hundred yards, when some of the pins are moved a little to prevent the short curves.

ONE of the most distinguished physicians of New-England ascribes the fearful increase of cases of paralysis to the use of stoves in close rooms, particularly in sleeping apartments.

EXPERIMENTS ON COTTON,

WITH SALT, GUANO, AND SUPERPHOSPHATE OF LIME.

ACCORDING to promise made you, I herewith send the result of a part of my experiments with guano, &c. Cotton seed planted soon after drilling manure, which was done under my own eye, articles weighed and measured by myself on 4th and 5th of April.

Kind of manure. No.	Order of rows and quantity of fertilizers to each.	Seed, how prepared.	Product in lbs. Per row, acre.
1. Salt.	1st 2 bushels per acre in drills.	Seed brined and rolled in plaster.	121— 968
	2d " " on row.	" "	135—1080
2. Guano.	1st 247 lbs. guano per acre.	Seed plain, brined and rolled in plaster.	135—1080
	2d 200 lbs. guano.	"	156—1248
	3d 100 "		162—1290
	4th 200 "	" brined, &c.	145—1160
3. No manure.	1st nothing added.	" plain.	130—1040
	2d " "	" brined, &c.	133—1064
	3d 4 bushels salt per acre in drill.	" plain.	117— 936
	4th " "	" brined, &c.	118— 944
4. Superphosphate of lime.	1st 200 lbs. phosphate per acre.	" plain.	134—1072
	2d " "	" brined, &c.	132—1056
	3d 100 "	" plain.	105— 880
	4th " "	" brined, &c.	131—1048
5. Bones.	1st 4 bushels bones per acre.	" plain.	112— 896
	2d " "	" brined, &c.	136—1088
	3d 2 "	" plain,	135—1112
	4th " "	" brined, &c.	149—1192
6. Guano & plaster.	1st 200 lbs. guano, one bushel plaster per acre.	" plain.	128—1024
	2d " "	" brined, &c.	138—1264
7. Guano & bones.	1st 200 lbs guano, four bushels bones per acre.	" plain.	162—1296
	2d " "	" brined, &c.	142—1153
8. Guano & phosphate.	1st 200 lbs. guano, 160 pounds phosphate per acre.	" plain,	143—1144
	2d " "	" brined, &c.	135—1080

REMARKS.—I made other experiments with other quantities, but deem them too cumbersome. The field in which these experiments were made is the thinnest land on the place; the rows 440 yards long, 4 feet distant, and running due east and west. The 40-acre piece lying east of plantation road, averaged 1370 lbs. These experiments embrace not the entire yield, as I had made a light picking before I took note, and one or two after; but as there are three pickings from 13th of September to the 22d of November, I deem the showing as fair.

I made only one note during summer: June 18.—I noticed on the 16th

that Nos. 6, 7, 8 were growing much faster than the others; up to this date I had not observed any difference. I see very little if any difference between 1, 2, 3, and 4, whilst 5 really appears smallest; it may be the contrast between 5, 6, 7, 8. This was made without examining book as to manures. You will observe in No. 3, 1st and 2d rows had no manure. Now, take No. 3, first two rows giving about 1050 lbs. per acre, and where 247 lbs. of guano were used. No 2–1, and the product is equal or about. Showing, so far as this experiment goes, that 247 lbs. of guano did no good, whilst 100 lbs. No. 2–3, gave 240 lbs. increase for the 100 lbs., or nearly $5 for the guano.

The greatest result was with the 100 lbs., and in No. 7–1 with 200 lbs. guano and 4 bushels of bones.

I did intend to draw no inferences, and believe I will do no more, but leave the matter to your consideration and that of our friends. Of course, I had no interest but to test what was my interest. The result has been so unsatisfactory that I am now undecided; yet, if others claim so much from one experiment, I may as well do so too.

I think I will try again, yet the trouble of having rows picked separately, for three, four, and five times, and for one to be present to prevent mistakes, is rather troublesome. I think, therefore, only of trying an acre or so, side by side.

I can not resist bringing to your notice that salt drilled, 2 and 4 bushels per acre was a detriment; see No. 1–1 and 2, and 3–3 and 4.

Again, Nos. 6, 7, and 8 were the largest and thriftiest, very green even till frost, No. 6 having rather a preference all the time, and more bolls not matured.

M. W. PHILIPS.

—*From the American Cotton-Planter.*

BUTTER AND CHEESE.

WE give below a valuable selection from the Report of the Committee of the "Rhode Island Society for the Encouragement of Domestic Industry," on this subject.

From these experiments it is shown that to obtain the best of sweet butter, that will keep for a greater length of time than any other without being rancid, we must churn sweet cream—that if the butter-milk is valuable in market, and the butter can be disposed of soon after it is made, there will be the greatest gain by churning the sour milk and cream together; that by scalding the milk, and then taking off the cream, the milk is best for market: although the yield of butter is greatest, and the flavor good, it must be put in market direct from the churn and consumed without delay, or it becomes rancid and worthless; that in proportion to the quantity of butter produced from the cream of a given measure of milk, reference being had to the length of time the cream is suffered to remain upon it, will be its liability to become soonest rancid; that the excess of weight, as exhibited above is to be attributed in a great measure to the absorption and combination of caseine (curd) with the oleaginous (oily) portions of the cream; that the prevalence of caseine, although it is not objectionable by imparting any unpleasant flavor while new, renders the butter of less value, as it soon grows rancid; and for the further reason that it is used, necessarily, more profusely than new butter,

which has less curd in it. It has been fully proved that milk contains, on an average, only one per cent. more curd than butter.

Dumas says, "that the facility with which butter becomes rancid, depends on the presence of caseine, (curd) from which it is necessary it should be separated in order to its preservation."

This can be effected by fusion, (melting.) For exportation to hot climates, or for the purpose of preserving early-made butter sweet through the heat of summer, for winter's use, it should be clarified before salting or much working. For this purpose, it is put into a lipped vessel and placed in another of water, which is to be gradually heated, till the butter is melted. Care must be taken not to over-heat it; it must be kept melted until the curd and butter-milk have settled; the clear melted butter is then poured off from the sediment into small white kegs, containing from twenty to thirty pounds each, or into maple cannipails, of Shaker manufacture, for family use. When sufficiently cooled, and before it hardens, it may be salted with less than half an ounce of fine *rock-salt* to the pound, but as it is difficult to incorporate the salt well, the salt may be omitted, and the butter will keep perfectly sweet. What butter remains in the vessel will rise to the top, and harden like tallow; when taken off, the amount of curd and butter-milk will appear. You will then have the pure article, equal to the best of table butter, for all the purposes to which sweet oil (as we get it) or drawn butter is applied—it is perfect for shortening—melt it in milk instead of water. It is not suitable to spread cold on bread.

One of your committee, in the warm season, last year, took seventeen pounds of sweet, salted, lump butter, and proceeded as above directed. What settled at the bottom after melting, was composed of two ounces of limpid whey, two ounces of fine salt, and twelve ounces of curd—in all, one pound. Had this curd not been extracted, the whole, long before this (2d of Feb.) would probably have been rancid. The experiment proved perfectly satisfactory, and is recommended to the public. Store-keepers back in the country, who take in butter, would find it to their account by putting it in practice, thereby diminishing the amount of "grease-butter" sent to market.

Adulteration of Milk, from *Bowman's Medical Chemistry*, as published in the *Providence Journal*, some time since: "We have no chemical means of ascertaining whether water has been fraudulently added to milk; the only effect being to dilute it and render it of poorer quality. A knowledge of the specific gravity can not here be made available, since the abstraction of cream, which has a lower specific gravity than milk, may be made to neutralize the effect produced by the addition of water; the tendency of the removal of the cream being to raise the specific gravity, or weight of the milk, and that of the addition of water to lower it. A specimen of milk, therefore, which has been impoverished by the abstraction of cream, and still further weakened by the addition of water, may be made to possess the same specific gravity, or weight, as it had when taken from the can."

The average product of cow's milk is 15 per cent. of cream by the lactometer.

It is of quite as much importance to ascertain the average product of curd; but this can only be done by actual experiment, as no instrument will show it. Liebig says the nutriment in milk depends upon the amount of curd it contains, and not on the amount of butter. An experiment was tried by feeding a dog with butter only; he became very fat, his hair was saturated with grease, and he died at the end of thirty days. Those who were opposed to this view of the subject repeated the experiment, and the dog survived, but

this result was attributed to the great amount of caseine (curd) contained in the butter.

If the object of a dairy be to make cheese, cows should be bred and selected that give milk rich with curd; if the object be butter, those that give a light milk will produce most; but if the object be the greatest profit in selling milk, such cows should be selected as will give the most milk, and from which the least butter and cheese can be made from a given quantity.

It is a remark often made, and with truth, by those who have the care of dairies, that there are individuals among their cows, whose milk yields little or no cream, but abounds in curd; while the milk of others is very deficient in curd, but is not lacking in cream. The perfection of milk is the union of these two desirable properties, and its greatest defect is the absence of both.

A cubic foot of pure water weighs 1000 ounces avoirdupois, very nearly.

The weight of all substances, except the gases, (all being brought to one temperature,) is, in relation to that of pure water, whose specific gravity (weight) is represented by unity, or one, thus:

Water - - - - - - - - - - - - - - - -	1.000
Butter is lighter - - - - - - - - - - - -	0.942
Cream " - - - - - - - - - - - - -	0.980
New milk average is heavier - - - - - - -	1.028
Skim-milk " " - - - - - - -	1.038

In a former communication on the subject of butter-making, we disapproved of the practice of adding water to the cream, and of washing the butter, to rid it of its butter-milk. The carbonate of lime, found in water, causes the incrustation which forms on the inside of utensils in which it is boiled. Butter absorbs the lime and magnesia present in salt and in water, when it comes in contact with them; it has an injurious effect on its quality and preservation. It is therefore in all cases safest not to wash it, even if the water be pure; it will, in a measure, destroy its fine fragrance and flavor.

The use of pure salt can not be too often recommended to those who have dairies in charge. More than a million of dollars can be annually saved to our farmers in this country, by attention to this point. No one denies that good pure salt is made at our salt-springs, by solar evaporation, if taken from the first pan where all the crystals are perfectly square; but this salt comes to the consumer with various degrees of adulteration; and is therefore cheap, as to the first cost. After the square crystals of pure salt have ceased to form; then, by further evaporation, the salts of magnesia, and glaubers salts begin to show long needle-shaped crystals, very bitter to the taste; easily dissolved, and always found moist in damp weather. It will not preserve fish or meat, and when used for butter, will dissolve and run from it like water. Whereas rock-salt gives it firmness, which facilitates the extraction of butter-milk and preserves it sweet. Many bags marked rock-salt have been filled more than once; and many others never came in contact with it. Let the farmers club together, and send to a sea-port, and get the best of rock-salt—sift out the fine, wash and dry the lumps, and have it ground at any grist-mill in the neighborhood, as our fathers did, before the introduction of the very improved fine Liverpool bag or blown salt.

For the Committee, STEPHEN H. SMITH.

We also add the following selection from some unknown source:

"BUTTER.—Butter made properly is very easily preserved. The cream should be churned *while it is sweet*, the butter-milk thoroughly *worked* out—

not *washed* out with cold water—about an ounce of salt applied to a pound, packed away in the tub closely, and kept as much as possible from the air. This is the whole operation of making and keeping good butter. It is not the pure butter, which is an oil, that becomes rancid, but the butter-milk that is with it. We have seen a statement from a French paper, that the bad taste and smell of butter may be entirely removed by water mixed with chloride of lime. The discovery was made by a Brussels farmer, whose practice has been to take a sufficient quantity of water to work it in, and put in it from 25 to 30 drops of chloride of lime for every 10 pounds of butter. When it has been worked until the whole has been brought into contact with the water, it should be worked again in pure water, when it will be found sweet. This plan may easily be tested, and we should think it worth while for those dealing in butter to try it."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BOOK-FARMING.

MESSRS. EDITORS: Man is so constituted by early education and association in early life, that it is not strange that we should cling to them in after years. Our early training in morals and religion is seldom forgotten; our early education in tilling the soil is apt to cling to us in after-life.

There is a common prejudice among farmers against book-farming. Most of this we have received by early training. It is very important that the farmer should form correct theories—that he should understand the nature of each crop he cultivates, the nature of the soil on his farm, the amount of manure required for each successive crop, the kind best adapted to any particular location on the farm, the best time to plough different soils, the best and most prolific seeds for cultivation, their character and habits, the most proper time to sow and plant, and so on, through a long list of operations. Now, is this science all untrue and deceptive, because it is a matter of record? Certainly not. Do any of our brethren know so much that it would be injurious to know more? Is there not room still for improvement? Do our fields do all that they are able to do by an improved system? We think we hear the answer NO to all these questions.

But how are we to be benefited by books and agricultural journals? We answer, read and practice what is adapted to our case. We must use our best judgment. We are not bound to receive what we think is unreasonable. If a correspondent advances a visionary scheme, we are not bound to follow it. But some will say, we work our farm the same as our fathers did! but do we harvest as large crops as they did? No! They cropped a virgin soil. It has now become exhausted. Books will tell us how to restore it to its original fertility.

We are not apt to think of that vast pile of pork, beef, mutton, corn, &c., carried from the farm, for two or three generations, without having the same elements restored again to it.

If there are the elements of five hundred bushels of corn in one acre of land, with what the plant absorbs from the atmosphere, when we have taken out four hundred, there is but one left, and so on, till we have taken the whole, without restoring to the earth, in the shape of manure, that which has been taken from it.

Some will say, we have seen enough of book-farming. There was such a man did this, that and the other, and "came out at the little end of the horn," as the saying is.

All very true. Do all hap-hazard farmers succeed? Do not as many systematic farmers succeed in laying up a competence for themselves and families as book-men do in any other occupation?

A good agricultural journal is a great help to a practical farmer. We might see there an experiment we had designed to make, and we may thus be informed of the folly of renewing it.

On the other hand, we might see something the idea of which never had come into our mind before, that might be of many dollars' advantage, paying the subscription, and leaving a balance in our pockets besides.

Epping, N. H. D. L. Harvey.

BLOOMSDALE—THE SEED-FARM AND RESIDENCE OF DAVID LANDRETH, ESQUIRE.

This establishment is situated on the Pennsylvania side of the Delaware river, one mile above Bristol, and embraces about two hundred acres of land.

The father of the present Mr. L., who was the first in this country to systematically cultivate seeds for sale, commenced his operations shortly after the Revolution, on a very limited scale, but at that day sufficiently large to meet the demand, with the aid of occasional importations from Europe; and within the last quarter of a century, the grounds cultivated by this concern (then as now the largest in the Union) did not exceed 30 acres. Now the shipment of seeds is to far distant points. California calls for supplies by almost every ship; Oregon and New-Mexico make occasional demands; South America and the West Indies are regular customers; and the British possessions in Asia obtain annual supplies. Within a short period Mr. L. has completed a shipment of *four tons*, ordered for distribution in British India! Thus has increased the commercial demand for one of our country's many products, and thus is answered a question which is very naturally asked on viewing the crops at Bloomsdale: where is market found for all these seeds? The amount of labor expended on the culture is evidently great, and though nearly all the crops are in drills, thus admitting of mechanical aid, still many hands are requisite to subdue the weeds, harvest and thresh the crops, and perform other operations incident to the business.

Mr. L. has found the system of providing household accommodations for his hands, to work well. Eleven families now reside on the estate, (the single men boarding with the married,) each provided with a neat cottage and garden—keep their own pigs and cultivate their own vegetables and flowers. They are encouraged to keep all neat and trim; the inconvenience and temptations of remote residence are avoided, and as Mr. L. never changes his hands but on compulsion, they feel assured good conduct will insure permanent homes.

A tank for collecting liquid manure flowing from the barn-yard, has been erected, and is capable of holding about 50 hogsheads, durably built of stone, coated with hydraulic cement, and is emptied by an ordinary chain pump, which discharges into a cask on wheels. This, though an economy almost universal among English farmers, is seldom resorted to in this country, though it could be with decided advantage by every tiller of the soil.

Among the live-stock is a pair of Norman ponies, which are made to serve a double purpose—amuse the youngsters, and cultivate drilled crops; they work within 16 inches and possess sufficient power for the harrow. These, with mules for similar labor, and oxen and heavy horses for ploughing and cartage of manure, are the force employed.

The lawn at Bloomsdale embraces eight to ten acres, and though formed but five years, promises to be highly attractive, it being laid out with unusual care and judgment. It is planted with a carefully-selected variety of indigenous trees, also many rare specimens imported from abroad for the position they now occupy.

We might here express regret, that many among us who have expended largely in the erection of their mansions, have not decorated their grounds to accord therewith. True taste consists in an harmonious whole—the grounds and buildings to be pleasing and effective must be "in keeping." Even the *habit* of trees should be studied; certain trees suit certain styles of architecture. Flat-headed ones do not accord with pointed buildings, nor do spiral trees harmonize with Italian structures, the lines of which are mainly horizontal. On these subjects we have much to learn—let us meanwhile practice what we already know, and thus impart the information to others.

It is amongst the most gratifying evidences of the true progress of agricultural and horticultural science in our country, that men are found who devote their time and attention to one particular branch, and thus develop fully what is capable of being effected by proper cultivation. Of this class are those who have demonstrated the progress that can be made by proper improvement in cattle, horses, hogs, sheep, &c. They have furnished a *seed* from which the farmer can greatly increase the quality of his products, and thus have given an impetus to this important resource of our country's prosperity. In this view of the subject, Mr. Landreth deserves to be ranked as a benefactor of his race. He has brought science, skill, and experience to bear successfully upon a department of agriculture which is developing the capabilities of the soil, and adding to the products of the earth, whether cultivated on an extensive scale by the farmer, or by him only who tills his little plot in the garden.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WISCONSIN.

MESSRS. EDITORS:—Thinking that a description of this country would be of interest to some of your readers, who may wish to emigrate, I have determined to set forth the advantages of this particular county (La Fayette, Wis.) for settlers.

There is but little vacant land in the county, nearly all having been entered by settlers or speculators. The settlers are generally of an unquiet disposition, and fond of change; many would sell out cheap, for the sake of moving.

The land held by speculators is mostly timbered, and can now be bought at from $5 to $10 an acre; but land is increasing in value daily.

Improved farms can be bought at from $7 to $14 an acre. One farm, near me, of 400 acres, over 100 under cultivation, 80 in timber, and 80 in meadow, with a comfortable frame-house, and fine springs, can be bought for $7

an acre. I know a lot of about 280 acres, 120 of the finest meadow, about 60 well timbered, the rest open prairie, belonging to speculators. This is one of the most beautiful sites for a farm that I have seen any where, and can be bought for between $4 and $5 an acre; two years ago, it was held at $3 an acre.

Land in this vicinity is very rich, the soil being from six inches to several feet deep. The surface is covered to the depth of about three inches with a rich vegetable mould, as black as ink, and as soft to the touch as velvet.

There is a field on the river bottom, which has been cultivated twenty years, and has never had a particle of manure applied to it, which, I am assured, produces as abundantly now as ever.

Corn is the most reliable crop, and the yield is from 60 to 100 bushels per acre. The soil is rather light for wheat, inasmuch as the wind blows it from the roots in winter, unless protected by snow; though wheat will make a good crop, if a proper spot is selected, and the wheat sown early and abundantly, so as to sod the ground before the cold weather sets in. Crops of wheat raised on sod which was turned over the preceding summer, are always sure, and yield from 25 to 40 bushels per acre. Oat crops yield from 60 to 100 bushels. Rye and barley are good crops.

As to vegetables, they are produced in perfection. I raised carrots last summer 18 inches long, and as large as a man's leg, on ground which was only broken the summer before, and was not even ploughed before the seed was sown. Under the same circumstances, I raised radishes, weighing 8 and 9 pounds; turnips, 9 inches in diameter, which would probably weigh 15 lbs.; tomatoes, weighing 1 lb. 14 oz. Potatoes of the finest quality, and 350 bushels of corn, on seven acres. Next summer, I expect to get 100 bushels per acre. I raised water-melons from seed brought from Virginia, which, though not remarkably large, were as fine flavored as those from which I got the seed. I planted a little tobacco last summer for experiment. I will simply add, that I sold some of it, *in the leaf*, for fifty cents a pound.

This is a great grazing country, and is admirably adapted to raising stock of all kinds. Cattle keep in good order all the winter, on wild hay. The tame grasses grow luxuriantly, and the wild, of which there are several varieties, grow six and eight feet high, and yield from two to four tons of hay per acre.

There is a fine water-power within a mile of me, capable of supplying several large mills, and I am surprised that it has not been taken advantage of; particularly, as a grist-mill is very much needed in this neighborhood.

Limestone, in strata, from one inch to one foot thick, and sometimes eight feet square, is abundant, and well suited for building purposes.

As to markets, we have the lead mines; Wiota, 6 miles from me; Shullsburg, 18 miles; Warren, Ill., 6 miles distant, at which place, there is a depot of the Chicago and Galena Railroad, which road has just been completed to Warren, and will probably be completed to Galena by next summer. Warren is also the point at which the Mineral Point Railroad intersects the Chicago and Galena road; so by next summer, we will have Chicago, Galena, and Mineral Point for our markets.

It is supposed that the Milwaukee and Dubuque railroad will pass through the centre of this county. Several surveys have been made within a mile of me.

I would not be surprised to see this, in less than five years, one immense village from the Lake to the Mississippi, and eight or ten miles wide.

The country is very healthy, except on the river bottoms, where intermit-

tent fever prevails. The winters are severe, to me, a Virginian, and are six months long. The summers are delightful, and in those months the country is positively beautiful, particularly what is called the barrens, which resemble a magnificent rolling park, with its green trees, and rich grass, and beautiful wild flowers. Respectfully yours,

G. W. VARNUM.

Wiota, Wis., January 3, 1854.

MASSACHUSETTS AGRICULTURAL FAIR.

THERE is one feature about the fairs of Massachusetts which deserves especial mention. We refer to the great number of persons who receive premiums. In some societies the number of applicants is limited, and the list of successful competitors might almost be stereotyped. In the local societies of the Bay State, no such criticism can be justly made. We have prepared the following table from the returns of the State Board of Agriculture:

Names of Societies.	Number of towns in territory represented.	Number of towns in which premiums were obtained.	Amount of prem's. obtained.
Essex, ...	30	22	882.12
Middlesex, ...	50	24	589.00
Worcester, ...	58	23	591.00
" West, . .	—	11	457.00
" North, . .	—	10	298.70
Hampshire, Franklin, & Hampden, . . .	69	18	663.90
Hampshire, ...	23	22	500.00
Hampden, ...	20	10	598.75
Franklin, ...	26	16	388.41
Berkshire, ...	32	22	813.00
Housatonic, ...	—	15	865.00
Norfolk, ...	23	18	749.00
Bristol, ...	19	14	640.75
Plymouth, ...	19	18	597.75
Barnstable, ...	14	8	182.75

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

HOP-RAISING.

DEAR SIRS: I have delayed much longer than I intended the notifying you of the amount of hops raised in this vicinity. The crop this year has been very meagre.

Not one half the quantity, in the same yard, has been produced this year that was last, many yards having been brought under cultivation. In many, the vines did not (a majority of them) ascend the pales over four feet. The growers attribute it to a worm preying on the roots in the early part of the season.

A set of *sharpers* came into the vicinity in July, and contracted with all who would bargain, from seventeen to twenty-two cents. At the time they were collected for market, the price was quick at thirty-four cents, and the few who did not sell till winter, received thirty-eight cents.

There were seventy-five tons taken in at Hyde-park, that being the universal depot. Those dealing in the article, say there must be deducted nine tons for what came from other towns. Hop-raising is a money-making business, (which appears to be the *Yankee's* god,) and is a vast benefit to our farmers.

Yours truly, ARIEL HUNTON.

Hyde-park, Vt., February 27, 1854.

MORE PROFITABLE FARMING.

THE following is the account of a farmer of Ohio. We commend it and others like it to the attention of all poor farmers. It is from the *Ohio Cultivator*. The writer says:

"All the items below have been produced, and increased on the farmsince January, 1853. We devote our attention *mainly* to raising wheat and corn; have some 15 acres in apple-orchards, &c. Our farm has 171 acres, 120 of which is in cultivation. I am assisted by three sons, 17 and 19 years of age, and therefore hire but little. I have not taken into account the labor done by the family on the farm, nor the articles consumed by them raised from the same.

Our wheat crop the past year was no more than two thirds of an average one. Mywheat and corn is mostly unsold yet; I therefore put the prices they are now selling for:

Farm account from January 1, 1853, *to January* 1, 1854.

EXPENDITURES.

Taxes for 1853,	$41 08
Hired lands,	71 10
Girl to assist in housework,	30 00
Machine for threshing grain,	22 96
Shoes and boots for the family,	41 00
Store bills,	138 80
Blacksmiths' bills,	32 00
Medical bills,	12 00
Churches, and building bridges,	20 00
School bills,	6 10
Newspapers and periodicals,	7 50
Repairing and building out-houses,	38 00
Reaping-machines, cost $130, say one quarter of this,	32 00
Wagon-maker, repairing,	6 25
Two mares to a horse,	8 00
Market-wagon, cost $40, say for this year,	8 00
Expenses attending market at Columbus,	18 00
Various other small expenses, amounting to	18 50
Total,	$551 79

RECEIPTS.

625 bushels wheat sold and on hand, at $1.10,	$687 50
1200 " corn " " 30c.,	360 00
30 stock hogs,	147 00
Lumber and timber sold from the farm,	112 10
3000 rails sold, (their places supplied by hedge,)	45 00
Rent of 2 houses belonging to farm,	48 00
Amount received for pasture from neighbors,	42 00
8 tons of hay,	64 00
Increase on 12 horses and colts—1 sold,	140 00
Seven stock cattle sold for	85 00
2 cows sold for	42 00
Increase on 28 head stock cattle and cows within the year,	110 00
160 bushels oats sold at 37½c. per bushel,	53 00
360 bushels apples sold in Columbus, averaging 60c.,	216 00
210 bushels sold at home for 25c. per bushel,	52 50
26 bbls. cider, at $2 per bbl.,	52 00
4 bushels timothy seed,	10 00
Work done for neighbors to amount of	66 00
Beef and hides sold	41 50
60 lbs. of wool of 14 sheep, at 50c. per lb.,	30 00
Increase in sheep in the year,	8 00
20 bushels sweet potatoes sold at Columbus, average $1.50 per bushel,	30 00
80 lbs. honey sold in Columbus, average 22c. lb.,	17 60
260 lbs. butter sold in Columbus, average 18c. lb.,	46 80
90 chickens, 100 dozen eggs sold in Columbus, average	20 00
Chestnuts, vegetables, and other small things sold	20 00
Shingles made and sold by us in the year,	42 00
Total amount sold and on hand to sell,	$2,608 00
Deduct expenses as above,	551 79
Amount of gain for the year,	$2,056 21

FEEDING HOGS ON COTTON SEED.

THERE seems to be a great diversity in the practice of Southern agriculturists in the use made of cotton seed, not required for sowing. The following account, taken from the *Soil of the South*, seems obviously a very proper application of this highly carbonized food. The writer says:

"I procured a large chaldron that holds ninety gallons, which I had put up with brick, with an arch in front, and a chimney at the opposite end, to draw the heat and let off the smoke. I put in this kettle three or four bushels of cotton seed, with a quantity of turnip-tops and old corn-cobs, the under leaves of cabbages, and a portion of salt, to make it savory; with this composition I feed twice a day, and keep my hogs inclosed in a ten-acre lot. They will keep in fine growing attitude until harvest. I then dispense with steaming their food, the gleanings of the oat fields will sustain them until I open my corn-fields in September. The cow-peas, &c., &c., put them in good

pork order, and by adopting this plan, I raise my pork plentifully, and to spare, with but very little corn. I view cotton seed prepared in this way, very wholesome and nutritious food. I generally kill my hogs when they are one year old, and they will average from 175 to 200 lbs. net pork. I keep from sixty to one hundred head of different sizes in my piggery, and living contiguous to market, send all my female pigs to the shambles.

Pigs, Mr. Editor, are very susceptible of disease. When they are affected with a dry cough, and mangy, I give them poke-root soup, take two or three large bulbous roots, and put them in a large pot or kettle, and boil them until they are soft and perfectly done, and put in a quantity of meal and salt, and when co l, convey it to the piggery, and let them feast on it. I also give sulphur and pulverized antimony, copperas and strong ashes to my hogs, which destroy the kidney-worm and keep up their appetite. Now, Mr. Editor, I have given you my plan of feeding cotton-seed to hogs, as also my prescription for pigs. If you think it will contribute to inspire the farmer to try the experiment, I shall feel myself fully remunerated.

"Montgomery City, Ala., January, 1854."

HOW TO PROCURE GUANO FOR A WHEAT CROP.

A writer in the *Country Gentleman* gets off the following:

How to procure guano for a wheat crop? Why, send the money to Longett & Griffing, of New-York, and you will receive guano in return if you so order it, the captious joker will say. Even so. But how obtain the money for *that* purpose, without trenching upon any extraneous source? "Why," says the joker, "the extra product of wheat will pay for the guano." Possibly it may, and more gain if it do. How to procure guano for a wheat crop? I will tell thee, gentle reader.

Instead of sun-drying your land all summer in the fallow system, plough it crosswise in the first week of June, and drag it without lapping, and sow, broadcast, from three to four bushels of Indian corn, and sweet garden-corn if you can obtain the seed, and then cover it up with a gang-plough or large cultivator. Take no further care till the last week of August, when you must mow down the corn fodder, tie it up in bundles, and remove it to an adjoining field for the purpose of clearing the ground for ploughing, and set the bundles up in shocks, and as soon as cured, put it into large cocks, say a load to a cock, and let it take a *sweat.* In a dry spell of weather, open the cocks in the morning, and cart to the barn in the afternoon, and stack it in the mow the same as hay, and salt every two layers of bundles at the rate of a barrel of salt to five acres of fodder. Or if you like it better, stack it to the weather, in long, narrow stacks, in joints about ten feet long, and thatch it with straw, English fashion.

The fodder from one acre, when cured, will weigh from four to seven tons. Mr. Alpheus Morse, of Eaton, told me at our county fair, that he had weighed half an acre of dry corn fodder, and its weight was three and a half tons, or seven tons to the acre. His farm, it must be borne in mind, is in a very high state of cultivation. This corn fodder is worth $10 per ton when hay is worth $7. Four tons at $10 per ton = $40 per acre. Seed, $3; mowing and binding, $2; carting, $1.50 = $6.50. $33.20 *profit on the acre to buy guano with!* The land is left perfectly clean and mellow, and there is no

loss in the consumption of the fodder, for the cattle do not leave a sign of it in the manger.

For soiling milch cows in the dry months of August and September, corn fodder is a complete stop-gap to the cows drying up, an object aimed at by all practical men. Half an acre is amply sufficient for ten milch cows. Try it, brother farmers, and see how much money you have lost in your lifetime.

If these calculations be correct, what an immense amount of fodder is lost every year in New-York State alone; for it is well known that all soils suitable for wheat will grow corn fodder to perfection.

Who will profit from the fact, that one acre of corn fodder will buy two hundred weight of guano to the acre for six acres of land? Corn fodder will revolutionize farming in the Northern States.

CULTURE OF THE CAMELIA JAPONICA.

As a green-house plant, the *camelia* stands second to none in its range of admirers. In the old and new world it is equally sought after, forming a conspicuous feature in the collections of the most costly exotics, as well as the most humble.

It has two pleasing attractions, beautiful evergreen foliage at all times, and flowers the entire part of the winter can be easily obtained, in shape and color equal to the finest rose. Under the hands of the florist, no plant has made more rapid strides to the standard aimed at; and to this country belongs the history of many of the brightest gems.

Its native country is Japan, and it is very nearly allied to the plant that produces the tea of commerce, (*Thea sinensis.*) It is a favorite with the Chinese, who have been long known to possess a yellow one, a desiderata much sought after. Mr. Fortune, during his mission to the Chinese, succeeded in procuring and sending to Europe specimens, which have since flowered. It is thus described: They are of the kind known as anemone-flowered, of a pale yellow or lemon color, the centre petals being the darkest. It flowers very freely, and both in habit and foliage is very neat. The leaves are smaller than in the ordinary kinds. It is thought to be much hardier than any other known *camelia.*

The camelia has a regular period for growth, after which it forms its flower buds; and this period is of the most consequence to the cultivator, if superior plants and flowers are desired.

As a general rule, they commence growing as soon as the flowering is nearly passed, and should then receive an abundance of water at the roots, the atmosphere at all times moist, and the plants syringed frequently over head. The temperature also should be kept from 55° to 60° as a minimum, and the plants kept carefully shaded from the mid-day sun.

As soon as the growth of the wood is complete, they commence growing at the root, and this is the time many prefer re-potting them; but provided the proper temperature is kept up, we prefer doing this just before they commence starting their buds. All young plants should receive a shift once a year, using pots about two sizes larger than those they are in. If very large specimens, once in two years is often enough. They are better under than over-potted.

After the growth is complete, they require to be kept cool and shaded

during summer, occasionally syringing over head, and the pots studiously kept from becoming dry, or the buds are likely to fall off.

The best way to keep these and similar plants during summer is in the open air, under a canvas awning, so that the driving winds and heavy rains can be kept off them, plunging the pots to the rim in some non-conducting material.

No collection should be without the following sorts: alba-plena, white; Beallii rose; candidissima, white; Abbey Wilder, waxy white, sometimes faintly striped; Chandlerii, rose; Duchess of Orleans, pink; fimbriata, white; imbricata, red; Jeffersonii, red; Landrethii, pink; pictorum roseum, carmine; Sarah Frost; sacco magnifique, rose; Kermysina, red; Lowii, ochroleuca, pale yellow; and Wilderii, rose.—*Country Gentleman.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE VEGETABLE GARDEN.

MESSRS. EDITORS: The "kitchen-garden" is much neglected. Most farmers pay but little attention to the cultivation of vegetables for the table, and what is attempted is done in the most imbecile manner. Some people seem to think a wheel-barrow of manure is thrown away by being put on the garden. All that is done in many cases, only assists to make a rank growth of weeds. The garden, like all other matters of business, to be successful, requires promptness. The work must be done in the right time, and well done, too. It must be manured and deeply cultivated, and this will generally insure a good harvest. We know of some farmers that think the cultivation of a small patch as a garden is beneath their dignity—rather small business. They have no particular dislike to the cabbage, beet, parsnip, &c., if they are well cooked, but they dislike the work necessary to raise them. Now, we believe there is no other spot on the farm of equal extent that pays so well for the labor bestowed upon it as the kitchen-garden, if the work is done well, and in the proper season; and not an equal number of rods on the farm that contributes so much to the support and health of the farmer and his family as the garden. A small piece of meat, with the cabbage, beets, carrots, &c., will constitute a good healthy meal for a large family, at a very cheap rate, much cheaper than is obtained from the broad acres.

There is an old saying, and a true one, "that a small garden, well cultivated, will half maintain a small family." We must remember it is to be well cultivated, the weeds not allowed to sap all the nourishment from the plants. If it will not be out of place, we will relate our system of gardening. Having but little help, we have to economize what labor we can in the working season. We cultivate as a garden about four square rods of land, of a moist, deep soil, situated so that the team can turn on the grass at each end. As soon as it is dry enough in the spring to work manure well, we plough as deep as the plough will work, and in two or three days, give it a good harrowing, and let it lie till about the first week in June, or when the ground is suitable to work. We then take a plough, and begin to back-furrow in the centre of the patch. After going out and back, we rake the furrow down, smooth the clods, and throw small stone into the bottom of the furrow out of the way. We then go round again, and rake down as before, till the patch is completed. We now mark off the drills by a stick with three pegs

driven in seventeen inches apart, drills running north and south, so that the sun will fall in between the rows at mid-day. Then we sow the seeds by hand, and cover with the hoe. By late sowing, beets and carrots grow with great vigor, and soon cover the ground, and prevent the growth of weeds. We generally weed but twice, which is mostly done with a hoe, and suffer no weeds to go to seed.

The finest beets and carrots that ever we raised for winter and spring use, were sown the 20th of June. On this small patch of land, we raise sufficient for our family, and have a surplus for stock, being fully satisfied that there is no spot on the farm of equal size that pays so well for the labor bestowed on it. We adopt a system of rotation, sowing beets one year and carrots the next, &c., with the exception of onions, which we can not raise on this spot.

Epping, N. H. D. L. HARVEY.

UNITED STATES AGRICULTURAL SOCIETY.

THE second annual meeting of this Society was convened in Washington, at the Smithsonian Institute, on the 22d of February. But it being the anniversary of a day always regarded with especial interest, the meeting of the Society was adjourned till Thursday, the 23d.

The following abstract will give a fair view of its proceedings:

SECOND DAY, THURSDAY, FEBRUARY 23.—The Society was called to order in the morning at half-past ten o'clock, Marshall P. Wilder, Esq., of Massachusetts, President of the Society, in the chair; Recording Secretary, W. S. King, of Rhode-Island; and Nathaniel P. Causin, of District of Columbia, Assistant Secretary.

The proceedings of Wednesday being read, credentials from the representatives of various States present were received. Nineteen States were represented, and about one hundred members present. The inclemency of the weather had detained many on the road, and some had been compelled to return.

The President then made his annual address, during which the venerable G. W. P. Custis, Esq., of Arlington, entered, and was received by the Society with the usual tokens of respect.

On motion of Mr. J. C. G. Kennedy, Corresponding Secretary, the President's address was referred to the Executive Committee for publication.

The Chair read a communication from the Secretary of the Treasury, inviting the members of the Society and their families to his residence in the evening. The invitation was duly accepted.

The Chair having suggested the appointment of a committee for the better management of business, it was, on motion of Colonel C. B. Calvert, of Maryland, agreed that committees of three members each be appointed for each subject under consideration, and to be named by the Chair.

Mr. Dedrick, of Albany, N. Y., moved that a committee of three members, on the subject of agricultural machinery, be appointed, and to report to the Society. He spoke at some length in explanation of the great importance to the agricultural interest of being placed in possession of the best implements for the prosecution of their labors. The motion prevailed.

Mr. Denton Offutt, of Lexington, Ky., moved the appointment of a committee on animal physiology, and the general improvement in all respects of domestic animals. It was a subject of high interest and importance.

Mr. Calvert testified to the influence, to him wonderful, whatever it was in itself, of Mr. Offutt's power over at least one animal, the horse. He had been an eye-witness to a scene at the Maryland State Fair, which may be mesmerism, or magnetism, or what not; but Mr. Offutt reduced almost instantaneously a horse noted for vicious propensities, to gentleness and tractability. He warmly seconded the motion of Mr. Offutt.

Messrs. Browne, of Pennsylvania; Earle, of Maryland; and B. Perley Poore, of Massachusetts, also bore witness to Mr. Offutt's extraordinary powers in this respect.

The motion was carried, and a committee of three, consisting of Messrs. Browne, Earle, and French, of Massachusetts, was appointed by the Chair.

The Committee on Agricultural Machinery was then announced by the Chair. It consists of Messrs. Dedrick, Musgrave, of Ohio, and Prof. Mapes.

An invitation from Mr. Glover to the Society, to visit his collection of models of fruits at the Patent Office was then read.

General Worthington spoke in warm commendation of Mr. Glover's labors and high success.

The Recording Secretary explained it to be the wish of Mr. Glover to extend his collection, so as to include at length all the esculent fruits and vegetables, and he was desirous that Congress should purchase his collection for national purposes. If the Society, after inspection and examination, should approve of his labors and objects, Mr. Glover would be glad to get their recommendation to Congress in his favor.

The invitation of Mr. Glover was accepted, and a committee appointed on behalf of the Society to examine the collection in the Patent Office. The committee consist of General Worthington, Messrs. Berckman, of New-Jersey; Warder, of Ohio; Munn, of New-York; and Richards, of Massachusetts.

The Chairman then offered for consideration the contents of two communications confidentially committed to him. One was from Mr. Joel Hitchcock, of St. Lawrence county, N. Y., on the subject of a remedy for the potato rot; the other on the subject of a remedy for the devastation of the *curculio* on fruits, by some person, whose name did not transpire. The object of the parties seemed to be to get their remedies to be tested by the Society through committees of the same, and reports made at the meeting of next year.

The question on the reference of these proposals, gave rise to a very animated debate, in which views of very opposite character, in respect to the probable value of the alleged discoveries, were elicited.

Mr. Worthington moved that the communication just read be received, and referred to the Executive Committee, to test the mode proposed, and that they report to the next annual meeting of this Society, which was carried.

Mr. Corey moved that communications from other persons on the subject of potato disease be referred to the Executive Committee.

Mr. French thought the Executive Committee should be instructed to appoint proper persons, members of the Society, to institute experiments. He moved an amendment of Mr. Corey's motion in consonance with these views, which amendment was carried.

The Chair then presented a written communication from a gentleman in Ohio, requesting that a committee of three be appointed to investigate the subject of the remedy for curculio.

After considerable discussion, Mr. Wm. S. King moved a select committee of three on the subject, of which the President of the Society should be

chairman. This was carried, and a committee appointed of Messrs. Wilder, Brinckle, of Pennsylvania, and Birckman, of New-Jersey.

Mr. Bradford, of Delaware, asked if any communication had been received by the Society on the subject of guano. The Chair having replied in the negative, Mr. Bradford then asked and obtained leave to read a memorial to Congress from citizens of Delaware, praying the interposition of Congress, either by purchase of one of the Chincha Islands, or by negotiation with Peru, to put a stop to the effects of the operation of the Anglo-Peruvian monopoly, by which the price of guano has been raised, and kept at the extravagant price of $54 per ton.

Mr. Bradford then pressed this subject on the attention of the Society as one of primary concern to the agriculturists, and in fact, the whole people of the country. On his motion, a committee of five was appointed in relation to the matter, namely, Messrs. Bradford, Calvert, Browne, Burgwin, of North Carolina, and Booth, of Virginia.

The list of the committee of nineteen on nominations was read by the Chair, Dr. J. D. Weston, of Massachusetts, being its chairman.

The report of Prof. Henry on the order of business was next read. Other committees were reported.

On motion of Mr. J. C. G. Kennedy, it was ordered that it be made the duty of the committee on nominations to nominate a permanent editor of the journal of the Society.

A communication from Mr. James Pederson, on the subject of introducing the Alpaca or Peruvian sheep into the United States, was then read by Mr. Munn, of New-York.

Papers collected by the Lighthouse Board were referred to by Prof. Henry, who made some interesting remarks on one of them, being a paper on the use and importance of Colza oil for burning.

An ear of corn was then exhibited by Mr. Henry Ives, of Ohio, and a distribution of the Japan pea was made by a member.

The meeting then adjourned till half-past five o'clock, P.M.

Evening Session.—At six o'clock, P.M., the President called the meeting to order, and introduced Professor Mapes, of New-Jersey, who exhibited and explained an improved sub-soil plough invented by himself.

On motion of Mr. Bradford, of Delaware, the subject was referred to the Committee on Agricultural Implements.

Dr. J. A. Warder presented a quantity of Japan peas, and described their nature and value. They were introduced in the neighborhood of Cincinnati three years ago, and have been widely distributed. It is not a pea, nor a vine, but has a stiff, woody stem; the leaves, however, are broad, and are greedily eaten by cattle; the fruit is very abundant, and occurs in short pods containing two or three beans; these are oblong when green, but round when dry. They will not be valuable for table use when green, but are liked by most who have tried them boiled or as soup, when ripe in winter, and must prove of great value, especially in the Southern States; succeeding well on all soils in which they have been planted. Their great value will be as food for cattle; they are easily threshed out when ripe.

In planting, give them ample room; for the greatest effect, say at squares of three feet; cultivate as corn.

The meeting then adjourned to ten o'clock this morning.

Third Day, Friday, February 24.—The Society was called to order by the Recording Secretary, W. S. King, Esq., of Massachusetts, who stated that

the President of the Society was prevented from attending at the opening of the meeting by indisposition, but he hoped to be present during the morning session. On motion of the Recording Secretary, the Hon. John A. King, of New-York, was called to the chair *pro tempore*.

Prof. Fox, of Michigan, then commenced his address on the important subject of extending and improving the education of the agricultural population of the United States, so as to elevate that vast majority of our people up to their proper level, and to bring a greater amount of intelligence to bear upon that important interest, the judicious cultivation of the soil. During the lecture, the President of the Society entered, and took his seat as chairman of the meeting, held temporarily by Mr. J. A. King. Not long after, and before the conclusion of Prof. Fox's address, the President of the United States, accompanied by the Secretary of the Interior, came in, and were introduced to the Society, which received them with courteous greeting.

The sentiments of the lecturer, which were that such institutions were not feasible, at present, were fully discussed.

The President of the United States then rose, and, addressing the chair, thanked him for the intelligence that had been furnished him of the session of the Society; spoke in terms of compliment and approval of so much of Prof. Fox's address as he had heard; acknowledged the high interest and importance of the objects of the Society, and of the questions before it; and said that, whilst he should be most happy to remain during the interesting proceedings yet to be had, other duties demanded his retirement, and compelled him to bid them good morning.

Mr. Taylor moved a resolution commending the purchase of Mount Vernon by the General Government, and making a portion of it the site of a national experimental farm.

The Chair stated that the subject was already before the Society, under a recommendation in the President's annual address.

Mr. Earle proposed a substitute, which he read, for Mr. Taylor's resolution, the intent of which was, that the United States Agricultural Society should indorse the efforts of the Maryland State Society to effect the same object. Mount Vernon, he said, was on all accounts the best place for a national experimental farm, and he believed there were many members of Congress in favor of purchasing it; and after a lengthy discussion, in the course of which Mr. John Jones, of Delaware, spoke strongly in favor of a home market for our wheat, the subject was laid on the table, to be taken up to-morrow morning.

Reports of committees were received, and duly referred.

The venerable G. W. P. Custis, Esq., being then called on, addressed the Society for upward of half an hour in an eloquent and acceptable manner. He recited circumstances, which occurred in the early years of the century connected with the rise of American manufactures. The old Arlington sheep-shearing was established to improve the sheep culture, and was kept up for nine years in succession. That was an age of agricultural barbarism, and it was thought a matter of great progress at that day, when from one he-lamb, of a year old, twelve pounds of wool were clipped. Mr. Custis compared the products of his farm now with what it was in former times, when for forty years, one of his farms, with one hundred working hands on it, only served to starve him. Now, from seven thousand to nine thousand bushels of wheat per year, with a prospect of fifteen to twenty thousand, was the state of his affairs. He advocated an imitation of the good Methodist practice of giving in experiences. Why did they not every year have a meeting

for that? The President from Essex county, Massachusetts, could report on his pumpkins, big enough to inclose himself and a party of friends at a rubber of whist. Prof. Mapes, of New-Jersey, could tell of his doings in superphosphate of lime. Mr. Custis enlarged in eloquent terms on the dignity of agriculture, the high respect paid to it and its devotees in England, from the prince to the peasant. In conclusion, he said it might be the last time he would address them. For the seventy-three years he had lived, he had also loved his country, and, though a Southerner, loved the true Yankee. He ended by entreating a blessing on the Society and its members, and that they might return in peace to their homes.

Mr. Robbins, of Ohio, presented a memorial from citizens of Ohio, asking the countenance and patronage of the Society to a cattle exhibition, to be held in September next, in Springfield, Clark county, Ohio, which, after considerable discussion, was referred.

Dr. Warder, of Cincinnati, then being called on, addressed the Society on the subject of the culture of the Catawba grape-vine, illustrating his remarks by reference to a series of drawings of the plant in various stages of progress. Though extemporaneous, the address was a very excellent one, and so luminous, that every body could understand it. Dr. Warder was much questioned by several members on various topics connected with the culture of this vine, all of which he answered most readily and satisfactorily.

The Society passed a vote of thanks for the address, and ordered a written paper on the subject to be printed among their transactions.

Prof. Mapes testified to the value of charcoal in vine-culture.

Dr. Warder spoke of the admirable effects of *potash*, as a manure for the grape plant. It supplied sweetness, increased the size, and improved the flavor.

Mr. Darius Clagett, of the District of Columbia, gave the history of a Catawba vine, now in his possession, more than forty years old, the parent of the greater portion of the vines now in the country.

Evening Session.—Mr. Myron Finch, of New-York, stated that a movement was now in progress for erecting a monument to the memory of the late John S. Skinner, the pioneer of American agricultural editors, and that the measure was receiving the sanction and coöperation of the most distinguished friends of agricultural science in the country. The subject had been before the National Washington Monument Committee, and that body had passed a resolution unanimously, authorising a block, with an approved inscription, to be placed in the National Monument now erecting to the memory of the Father of his Country. Mr. Finch then offered the following resolution:

Resolved, That this Convention has heard with pleasure, that measures are now in progress for erecting a monument to the memory of the late John S. Skinner, the distinguished friend and patron of agricultural science, and that we cordially commend said object to the favorable consideration of the agricultural community throughout the United States.

Geo. Blight Browne, Esq., of Pennsylvania, supported the resolution in a brief speech, in which he paid a deserved tribute to the memory of Colonel Skinner. The resolution was then unanimously adopted by the Convention.

Mr. Browne also presented a work on wool and hair, written by Peter A. Brown, LL.D., of Philadelphia.

Mr. Bradford, of Delaware, made a report on the guano trade, narrating the interview of the committee on the subject with Mr. Dudley Mann, Assistant Secretary of State. Hopes are entertained that arrangements may be made with Peru, by which the price of guano will be reduced.

The report was re-committed.

On motion of Mr. Earl, the memorial of the Maryland State Agricultural Society, petitioning Congress to purchase Mount Vernon for an agricultural school, was taken up and read.

Mr. French, a member of the committee, spoke favorably of Mr. Offutt's system, and after some discussion, it was carried, and Messrs. Blair, of Maryland; Earl, Browne, King, of New-York; and French, of Massachusetts, were appointed a committee to present it to Congress.

Mr. Browne, of Pennsylvania, made a report from the committee appointed to investigate Mr. Denton Offutt's system of animal physiology.

Mr. Causin, who was associated with E. P. Blair, Esq., to examine and audit the accounts of the treasurer, reported, (in the absence of Mr. Blair,) complimented their accuracy, and stated a balance of $3005 in favor of the Society. Of this, upward of one thousand dollars have been contributed at the present meeting.

Mr. Benson read a bill now before a committee of Congress, creating an agricultural bureau.

Mr. Calvert recommended the creation of an agricultural department, on an equal footing with the other departments, the Secretary to have a seat in the Cabinet.

George Blight Browne, of Pennsylvania, spoke at length on the various propositions for Congressional aid, and gave his own opinions.

Mr. French moved that the matter be referred to a committee, but withdrew his motion.

Mr. King, of New-York, moved that the Society adhere to the resolution of last year, asking for a full department.

Hon. Mr. Benson presented a resolution in behalf of Mr. Meacham, of Vermont, that a national exhibition of sheep be held in the course of the year in the State of Vermont, at such time and place as the Agricultural Society of Vermont shall appoint. Carried.

On a strong expression of the wish of the Society, Benjamin Perley Poore, Esq., addressed the Society, although the appointed hour had elapsed. Although prepared in haste, Mr. Poore's sketch of the rise and progress of agriculture in the old world, and more particularly in the new, was very interesting. He gave an account of Indian agriculture, and, passing through the history of colonial and revolutionary farming, came down to the present time.

On motion of Mr. Calvert, an address was ordered to be published by the Society.

On motion of Mr. Poore, it was resolved that a committee of three be appointed to collect facts and statistics illustrating the Indian and subsequent agricultural history of this Republic, embracing statistics, accounts of tools, and biographical sketches of noted farmers, and report to the Executive Committee in season for publication in the next report, if worthy. The committee are Messrs. B. P. Poore, W. S. King, and J. A. Warder.

The Society then called upon Dr. Eddy, of Massachusetts, for his lecture on *Bees and Bee Culture*. He described this branch of rural industry as the most profitable of all, as he had proved by his own experience. He pursued the history of the bee, in its family and social characteristics, and explained the process of honey-making.

Dr. Eddy having concluded his lecture on bees, and a vote of thanks awarded him, it was, on motion of Mr. W. S. King, of Massachusetts,

Resolved, That the thanks of this Society be and are hereby presented to

Professor Henry and the officers of the Smithsonian Institution, for the use of their lecture-room, and for their kind attentions; and also to Mr. H. Hardy, for his faithful attendance upon our sessions, and for his full and correct reports of our proceedings in the *National Intelligencer*.

And the Society adjourned *sine die*.

Officers for the Ensuing Year.—The officers of the United States Agricultural Society for 1854 are:

Marshall P. Wilder, of Massachusetts, President.

Nineteen Vice-Presidents, (one for each State represented.)

C. B. Calvert, John A. King, A. L. Elwyn, J. D. Weston, B. P. Poore, A. Watts, John Jones, W. S. King, Executive Committee.

U. S. King, of Boston, Corresponding and Recording Secretary.

William Selden, of Washington, Treasurer.

PROGRESS OF MECHANICS.—No. II.

In our last number, we presented a short but tolerably complete view of those mechanic arts, in which, for the last few centuries, no progress has been made.

We now purpose to give some of the more important branches in which new discoveries have been made, new inventions devised, or greatly improved skill in application acquired. The shortest possible description of all these in detail, would be of most indefinite length, if it should include each of the departments of art, but we can aim only to present a few, which, for some reason, might claim more special notice. We begin with certain branches of art, very nearly allied to those mentioned in our last number, and somewhat in the same order.

Glass-wares.—As already suggested, there are various departments belonging to this general title, and in some of them the moderns have greatly excelled the ancients.

1. In the manufacture of plates. The large plates often seen in our modern windows were formerly unknown, and the most elaborate of the stained windows of the ancient temples are of small panes; the mirrors of modern parlors were never seen in the houses of the ancients. This is the result of improvement in the implements employed.

Optical Instruments have also been chiefly the result of modern art. Nothing was known to the astronomers of olden times to compare with the telescopes now found in almost every prominent institution in the world. Even the smaller instruments, used by artists, as watchmakers, jewellers, &c., are of modern invention. The engravings of the ancients were executed by the eye, unaided by any thing but a single lens, and unremitted care and practice, and therein their skill is proved to be the more wonderful.

Weaving Glass.—This is a new application of this material. The fabric is exceedingly beautiful, and quite flexible. Progress in this department is yet anticipated.

Refining Metals.—No progress has been made in the results obtained, but there is very great improvement in the processes that are employed. The metals of various sorts are now extracted from their ores by means far more simple, more expeditious, and more economical than formerly. Some of those now employed will be considered under other titles in our journal. Suffice it here to say, that the process by which our best blistered steel is manufac-

tured, was unknown till 1750. Case-hardening is also a modern invention. Sheet-iron and sheet-tin are now prepared with much greater facility than they formerly were. Cementation is a process invented by modern English artists.

Iron and Bronze Castings.—In this department of art, within a few years even, we have made wonderful progress, chiefly, perhaps, the result of improvements in moulding. There is, however, one style or branch of the art now on exhibition at the Crystal Palace, which is far superior to any thing we have ever seen. It is from the Royal Foundry of Berlin. Several specimens are exhibited. The lines are nearly as perfect as if made by the chisel.

Another form or branch of this art consists in casting vegetable forms, plants, &c., with their stalks, branches, twigs, leaves, buds, and flowers. Some of these also are on exhibition at the Crystal Palace, and are really wonderful. The process is described as follows:

The object to be represented is placed in an empty vessel, with small wires attached to the extremities of each bud, leaf, twig, &c. *Silt*, or fine sand, of a proper quality, mixed with water, of the consistence of cream, is then poured into the vessel till the object is covered. This mould is then left to dry, after which the wires are withdrawn, and the entire mass is exposed to a powerful heat, while streams of air are directed against the insertions of, or holes left by, the wires. The plant is thus consumed, and the incombustible ashes are expelled by blasts of wind. A perfect mould is thus obtained, ready for the melted metal.

Rolling Mills. These are now of almost numberless forms. Iron and other malleable metals are rolled into almost any desired shapes. We shall exhibit elsewhere, rollers of various shapes, and one of them of peculiar economic value—that for forming the railroad bar. Almost every new variety of form that may be desired, may be thus produced by these means, at an immense saving of human labor.

The fine surface of Russia sheets is obtained by some secret process, which our artisans or those of England can not even approach.

Electrotyping.—We only refer to this, now, as a modern discovery, by which almost any substance may be covered with a metallic plate of greater or less thickness, as may be desired. We purpose hereafter to give these processes, which are within reach of almost any one, in considerable detail. This is a discovery of the present generation.

Amalgams.—The use of mercury, in the "silvering" of glass for mirrors, or for covering other metals, and other similar operations, is a modern discovery. It is the peculiar property of mercury, that it forms an amalgam with almost every other metal. In this form, resembling a paste, it is applied to the surface, which is to be covered. It is then exposed to a heat of 600° or 700°, by which the mercury is evaporated, and the metal, gold, silver, &c., is left in a pure, unmixed state on the surface to which the amalgam had been applied.

A similar use is made of it in obtaining gold in quantities, unmixed. This process is familiar to the miners of California, Australia, &c. Even pressure will accomplish the same result as fire. The amalgam is placed in a leathern bag. When powerful pressure is applied, the mercury escapes through the pores of the leather, leaving the gold unmixed.

Spinning and Weaving.—The improvements which have been made, even within thirty years, in these departments, would occupy a large volume. We name them only to suggest that on future occasions we purpose to go

extensively into the illustration of this, one of the most successful, most wonderful, and most triumphant achievements of our day, in which our own country has utterly out-distanced all other nations, so that England herself can not produce a yard of more than one kind of fabrics, so as at all to compete with our own manufactures, without buying the right to use American inventions. In more than one kind of goods, she pays a tribute for every yard she produces to one of the distinguished sons of New-England.

Labor-saving Machinery.—This may be worthy of a separate title, although its practical application may concern some of the arts specifically named. It is, however, an art of itself, to apply the force of wind, water, steam, &c., to the ten thousand forms of mechanical labor. There is scarcely a purpose or design to be achieved in the transmutation of forms, that is not essentially aided by machinery. But these inventions are nearly all recent. Even the trip-hammer is a modern notion. So are the innumerable machines or tools employed by turners in iron, in wood, of various forms, workers in sheet-iron and tin, shoemakers even, and many others.

SUSPENSION-BRIDGE FOR THE OHIO.

The following is a brief description of the proposed bridge across the Ohio river at Cincinnati, as designed by D. Griffith Smith, Civil Engineer:

This bridge will consist of one principal opening between two stupendous towers of suspension, the centres of which are 1400 feet apart.

From these towers the road-way will be suspended by three lines of wire cables, at an elevation of 112 feet above low water, leaving the whole width of the river clear and unobstructed.

The road-way will consist of two carriage-ways, separated by the centre line of cables, and four foot-ways; the width of carriage-ways at the centre of bridge, will be 10 feet each, and the foot-ways 3 feet, making the entire width of platform 32 feet in the clear.

The carriage-ways will pass through two magnificent gothic arches in each tower of suspension; the width of each arch will be 12 feet, and to the crown of arch about 30 feet.

There will be, as we have stated, three lines of cables, and in each line four cables; these cables will pass over rollers in cast iron saddles, firmly fixed on the summits of the pyramids; the extremities of the cables will connect with strong anchor-chains, laid in the most substantial hydraulic cement masonry.

The grade of the road-way, on the Cincinnati side, will commence at Columbia street, and rise at an angle of five degrees to the tower of suspension. At Front street, an elevation of 16 feet will be obtained. In crossing Front-street, it is proposed to construct a "Malleable Iron Bridge," of the Tubular Girder pattern. On the south side of Front street the road-way will commence, and be suspended to the shore-cables. The same plan of approach on the Covington side will be adopted.

The entire structure will be so arranged, and united in such a manner, that each of the parts may be taken out and replaced separately; so that there can be no difficulty in repairing any part of the bridge whenever required.

The principal dimensions may be more conveniently examined in a tabular form.

SYNOPSIS OF THE CAPACITY OF THE PROPOSED BRIDGE.

Length of span,	1400 feet.
Total length of suspended platform,	1985 "
Elevation of platform above low water,	112 "
Total length of cables,	2000 "
Number of cables,	12
" wires in each cable,	2000
Ultimate strength of cables,	18000 tons.
Total sectional area of anchor-chains, 800 superficial inches.	
Ultimate strength of anchor-chains,	24000 tons.
Maximum permanent load,	924 "
" transitory load,	794 "
Maximum load,	1718 "
Maximum tension of cables at the points of suspension,	5326 "
Number of persons that may collect on the platform,	12704
Number of oxen that the platform will contain,	1588
Tension of cables resulting from weight of floor and 1588 oxen, (each weighing 1000 lbs.,)	5236 tons.
Approximate cost of bridge,	$450,000
Time required for its construction, about two years.	

The design exhibits a plan of structure far exceeding in strength and grandeur any similar work ever projected either in Europe or America.

When M. Telford constructed the suspension-bridge across the "Menai Straits," it was regarded by all Europe as the mightiest achievement of man.

The first stone of that magnificent structure was laid on the 10th of August, 1819. On the 20th of April, 1825, the first chain of this stupendous work was thrown over the "Straits of Menai," and on the 25th of February, 1825, it was opened to the public: "a magnificent spectacle," says Dr. Arnott, "to behold chains of tenacious iron stretched high across a channel of the ocean, and supporting an admirable bridge-road of safety, along which crowded processions may pour, regardless of the deep below, or of the storm; while, beneath, ships with sails full spread, may pursue their course unmolested."

Let us now compare this bridge, which was the wonder and admiration of all Europe, with the proposed bridge across the Ohio river at Cincinnati.

DIMENSIONS OF THE MENAI SUSPENSION-BRIDGE.

Distance between the points of suspension,	579 feet.
Height of road-way above high-tide,	100 "
Deflection of cables,	43 "
Total length of bridge,	880 "
Maximum permanent load,	489 tons.
" transitory load,	300 "
Maximum load,	789 "
Sectional area of anchor-chains,	260 inches.

Two years after the completion of the Menai Bridge, Mr. Telford added another laurel to his justly-acquired fame, by constructing a suspension-bridge across the Conway river, one tower of which stands within that ancient fortress, "Conway Castle," built by Edward III.

The span of the Conway bridge is 350 feet. Elevation above high tide, 18 feet.

The span of Freiburg bridge, in Switzerland, is 960 feet.

The span of the Hammersmith bridge across the Thames is 400 feet, 3 inches.

The span of the suspension-bridge across the Danube, at Pesth, in Hungary, is 1000 feet.

The span of the Wheeling bridge is 1010 feet.

It will appear from the history of suspension-bridges, that no span has ever been constructed that will rank in magnitude and grandeur with the proposed bridge across the Ohio, at Cincinnati.

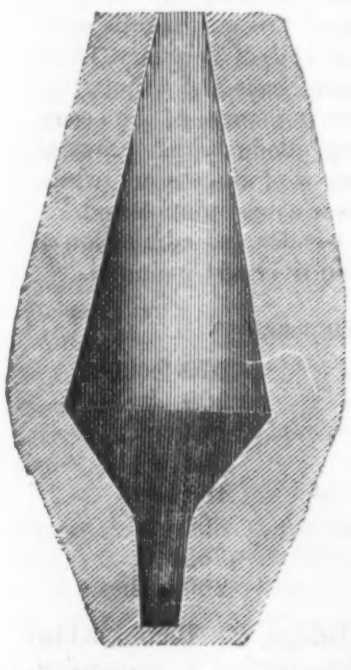
Mr. Smith's plans are at the Merchants' Exchange, where they can be examined by all who feel an interest in the enterprise.

IRON MANUFACTURE.—No. II.

We proceed with the general view of this subject, commenced in the last number, and shall endeavor that neither through our omission to examine the proofs, nor neglect so to do "elsewhere," we shall fail to say, in these pages, what we wish to communicate to our readers.

We commenced a description of certain furnaces, in common use, in this department of art. Beside those already named, we would give our readers, not familiar with the subject an idea of the form of one of the *Eastern-Pennsylvania charcoal furnaces.*

The figure in the margin represents one of these. Its height is 32 feet; width of boshes, 9 feet 6 inches; hearth, 5 feet high, 2 feet wide at the bottom, and 2¼ feet wide at the top. The ores generally used are the rich hydrates, pipe ores, fossil ores, &c., 2½ tons of ore produce, on an average, one ton of the metal. About 180 bushels of charcoal are required in obtaining one ton of iron. Different amounts, however, are required, according to the quality of the material used.

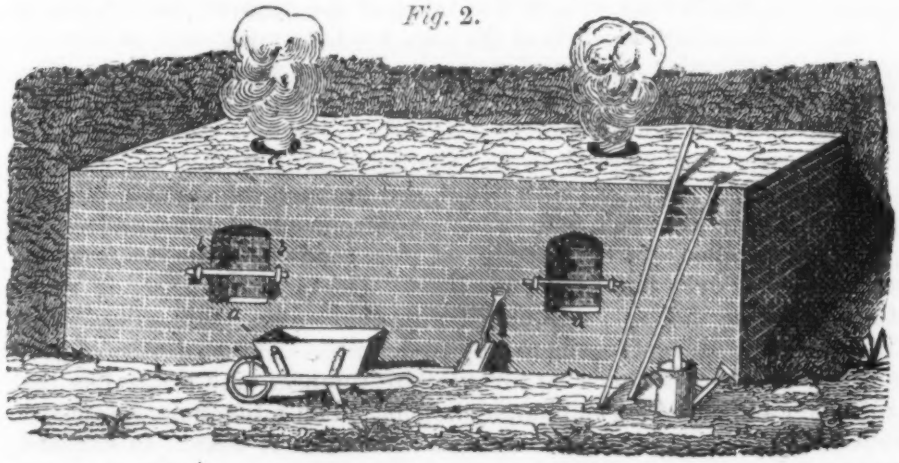


West of the Alleghanies, instead of using charcoal, coke is used in many places, that is, coal, from which the bituminous matter and the sulphur have been extracted. This is done either by burning the coal in large heaps, covered with earth, as are piles of wood for the manufacture of charcoal, or by the use of ovens designed for the purpose.

Figure 2 represents one of these ovens, sometimes called the Pittsburgh coke oven. Large quantities of bituminous coal are thrown into the oven when the fire is kindled. The doors *a* and *b b* are then closed, and the bituminous matter is separated from the coal, leaving behind a spongy mass of about the same quality as charred wood. This oven is built of stone or of common brick, against the slope of a hill, so that the coal may be readily discharged into it from the top of the oven. The English coke-ovens, long in use, were of a different construction, being an oblong square, with perhaps four ovens abreast. This form secures

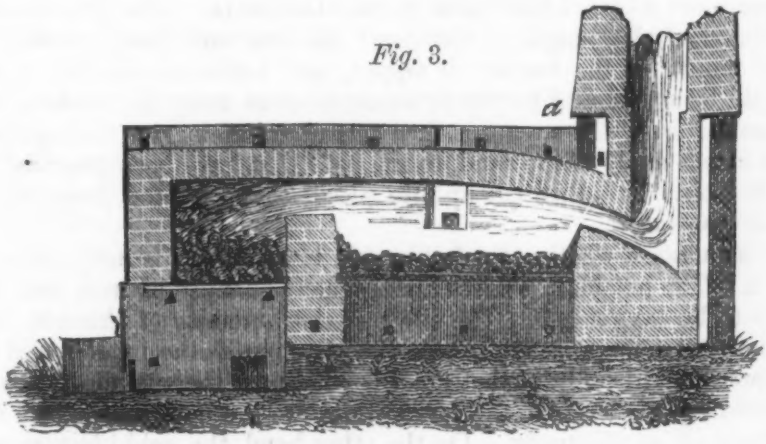
a greater economy in fuel, and also in masonry. The walls are two feet thick, of common brick, and the linings of fire-brick. The principles of both are the same, and the arrangement in the English form is more perfect, but more expensive. In some European countries still other forms prevail, from the fact that the coal tar is collected as a valuable article for trade. And we have no doubt that in this country it will be found profitable in many establishments to have especial regard to this product. Indeed, we have knowledge of one such in New-England, recently constructed. The products obtained by the manufacture of coke, are said to be sufficient to pay all the expense of the process. The coke is therefore clear profit.

Fig. 2.



Puddling Furnace.—The reverbatory or puddling furnace is best adapted to convert cast-iron into bar or wrought-iron. There is a great variety in the construction of these furnaces in different countries, and even in our own country. Through the West, the single furnace is used, which is the most ancient form, and which is substantially in general use in England. East of the Alleghanies, the double furnace. The single has one work door; the double has two, one opposite the other, and admits two sets of workmen.

Fig. 3.



The figure annexed shows a vertical section of a puddling furnace for anthracite coal. In this furnace, coal can be filled to the depth of from 20 to 24 inches, while in those designed for bituminous coal, a depth of 10 or 12 inches is sufficient. The letters *a a a a a* denote the cross-binders, or bars, of wrought-iron, which bind the cast-iron plates of the inclosure, and prevent the sink-

ing of the roof, caused by the expansion and contraction of the fire-brick. The two holes below serve for the passage of the draft. The blast machines are fans. There are various points worthy of notice in the detail of the single and double furnaces, but they are of interest only to the practical artisan.

It may be well to state here that an important improvement is said to be practised at some of the English forges, where scrap-iron is worked up. Instead of carrying the piles for some distance to the rolls or hammers before being compressed, and during which the "scale" is forming, an anvil is fitted directly at the mouth of the puddling furnace, and a hammer arranged overhead, so as to drop once or more, at pleasure, upon the opening of the furnace-door. A hammering weld is thus taken at the moment the iron leaves the furnace. In rolling, the ends of the piles are not drawn, as is usually the case, and a considerable amount of "cropping" at the shears is saved. The quality of the iron is said to be improved five dollars per ton by this mode of working.

The European ovens referred to are circular, about four feet in diameter, and nine feet high; are bound with hoops, and are made of common brick or stones, bound with fire-brick, with suitable arrangements of doors, draft-holes, &c., with the addition of a tube or pipe of iron, conducting the bar from the upper part of the oven into proper receivers. The tar is condensed in warm weather, by having the pipe surrounded with cold water. Still other forms are in use, which we need not here stop to describe. The properties of good coke are as follows: It should be silvery white, compact, with a ring like that of crockery-ware, pure from sulphur, hydrogen, and all bituminous substances.

Different kinds of coal produce different quantities of coke. In England, 75 per cent. by weight, and 120 by measure, is a fair average. The extremes vary from 55 to 88 per cent. of coke. Pennsylvania coals range from 68 to 88 per cent.

After the fuel is provided, the next point is to prepare or clean the ore. This is for removing all the earthy matter from it, and may be by washing or pounding. Afterward, some ores are *roasted* in kilns, not unlike those used for burning lime.

It is a sight full of interest to those unaccustomed to such scenes, to witness the processes which follow these preparatory steps. The fires having been kindled a suitable length of time, and the iron sufficiently *smelted* or melted, the mouth of the furnace is *tapped*, and sufficient quantity of the red-hot liquid being allowed to run to waste, to clear away the cinders, &c., from the melted iron, the stream is then turned so as to run through iron troughs, or canals made in the sand, to the beds that have been prepared for it. Here it cools. It is then cut up into pieces some two feet long, and is PIG-IRON or cast-iron.

There is a question whether the hot or cold blast furnace is most desirable in its action. The hot blast secures the greatest quantity of iron, but it is more likely to be oxygenized. The effect of this intensity of the hot blast is concentrated at a single point, to wit, directly opposite the tuyeres, and the oxygen supplied so liberally at that point is consumed there, while the blast is not diffused equally through the furnace, nor are the impurities of the coal or coke driven off so effectually. On the other hand, the cold blast, becoming suddenly heated, abstracts from the temperature of the iron at that point, and thereby retards its oxydation, or rather tends to prevent it, and then becoming itself heated, is diffused at unequal temperature through the mass.

The object of the operations which succeed those just described is to give strength and convenient form. The pig-iron is next converted into

Blooms.—This may be done in the forge fire, resembling the forge of the blacksmith on a large scale, or in the *puddling* furnace, which we have before described. The masses of pig-iron are here heated to near melting, and are then carried to the forge hammer. Here, whatever impurities the pig-iron may contain, will disappear under the repeated blows of this powerful machine, and at the end of the operation it is formed into rounded pieces, about one foot in length, which are called *blooms*. These blooms are then ready for the rollers, of which we shall speak in our next number.

The *pig-iron* is the "cast-iron" of common parlance, and it is only when it has become a "bloom" that it becomes "wrought-iron." It is proper, however, to state here, that recent practice has shown that the processes which we have here described are not absolutely necessary, and that economy, in fact, demands for certain ores and for certain kinds of iron, a different mode of manufacture. Indeed, the practice of ancient times was to produce wrought-iron directly from the ores, and the process, as now witnessed, is this. The ores are reduced, at a low temperature, in furnaces of a modified form, by which the impurities are not melted. The pure iron, more easily melted, leaves these behind. Iron thus manufactured is stronger, it is said, than when smelted in the usual way, and then puddled.

AMERICAN COAL STATISTICS.

The following statistics are from the Pottsville *Mining Journal:*

The consumption of coal does not increase as rapidly as was supposed. In 1852, the increase was less than 13 per cent., and left a surplus in the market. In 1853, the increased supply was less than 9 per cent., from all sources. To this of course is to be attributed the high price of coal during the latter part of the year; but taking the average over 12 per cent., it will reach it. We see no good reason to believe that this average per centage in the demand is likely to be exceeded the present year, which would require an increase in the supply of about 623,000 tons, in 1854, from all sources, to keep the market healthy.

This increased supply can easily be furnished by the different regions, provided dealers and customers will come forward and take coal early in the spring.

The same paper gives the following summary of operations in Schuylkill county:

Total number of collieries, - - - -	113
Red Ash do. - - -	58
White Ash, do. - - - -	55
Number of operators, - - -	82
Employed at collieries, - - - -	9,792
Miners' houses out of towns, - - -	2,756
Whole capital invested in these collieries, -	$3,462,000
By individual operators, about - -	2,600,000
Thickest vein worked at Heckscherville, feet, -	80
Smallest, - - - - - -	2

All the coal-lands now worked in Schuykill county are owned by six corporations, and about sixty individuals. About twenty-five of the owners reside in Schuylkill county, and the balance abroad. The coal rent will average about 30 cents a ton. The product of 1853, in Schuylkill county, was 2,551,603 tons. This would give an income of $765,480 to the landholders, in the shape of rents, for the year.

GARDNER'S ROCK DRILL.

This new and powerful machine is designed to be of immense advantage in tunnelling, mining, quarrying, and all kinds of sollid excavations. By an ingenious adaptation of two forces, one to compress and vitalize the other, it accomplishes an amount and kind of work which no direct application of the prime motor could possibly do. It is operated by hand, horse, or steam power, by means of which a very powerful cylindrical India-rubber spring is compressed. The reäction of this spring, which can be graduated to a nicety, and directed at will, drives forward the drill with a rapidity and force that will accomplish more work than forty men, who should never need rest or

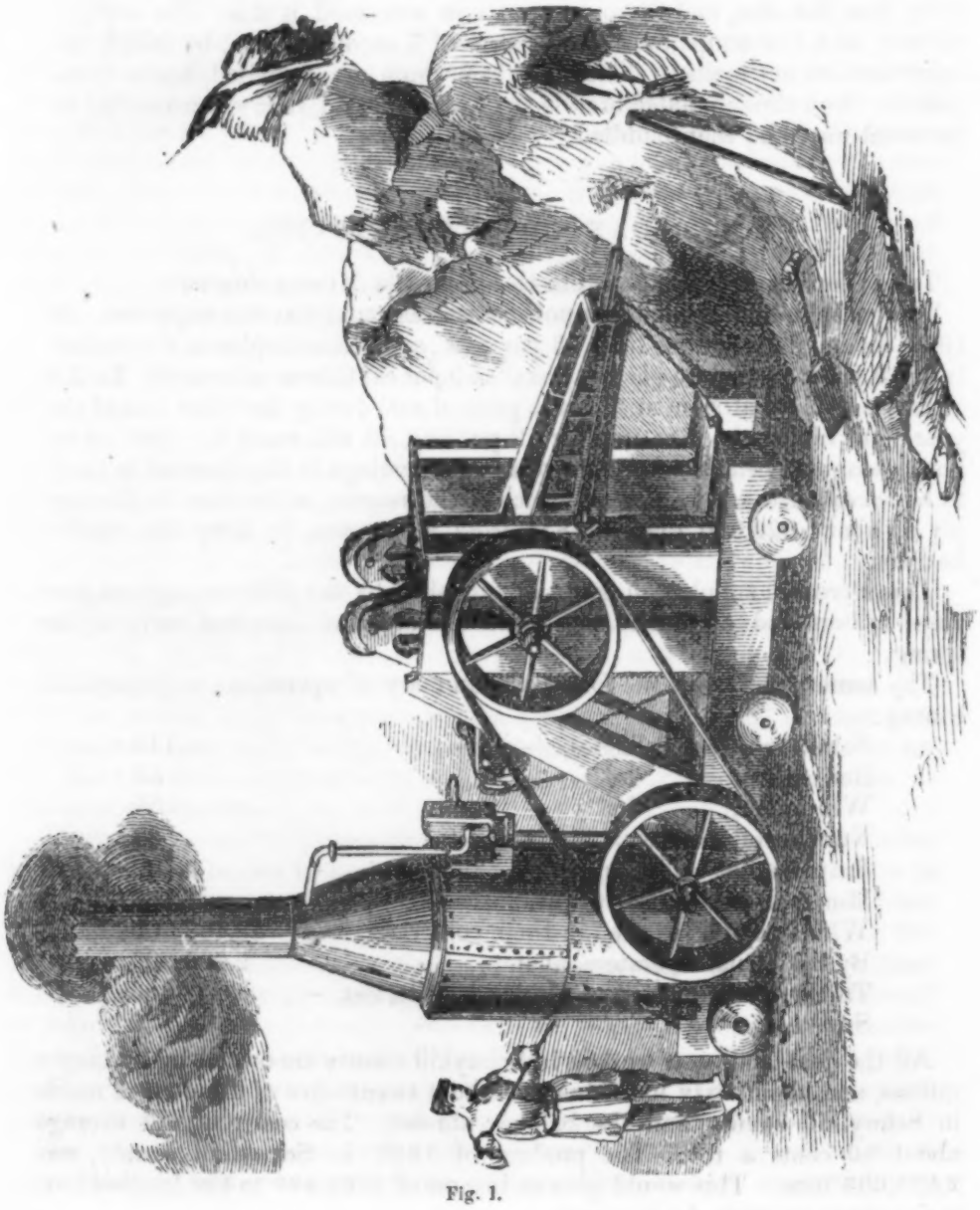


Fig. 1.

recreation could do. A saving of fifty to seventy-five per cent. in the cost of excavation can easily be effected by it. And the time saved is often of more consequence than the cost.

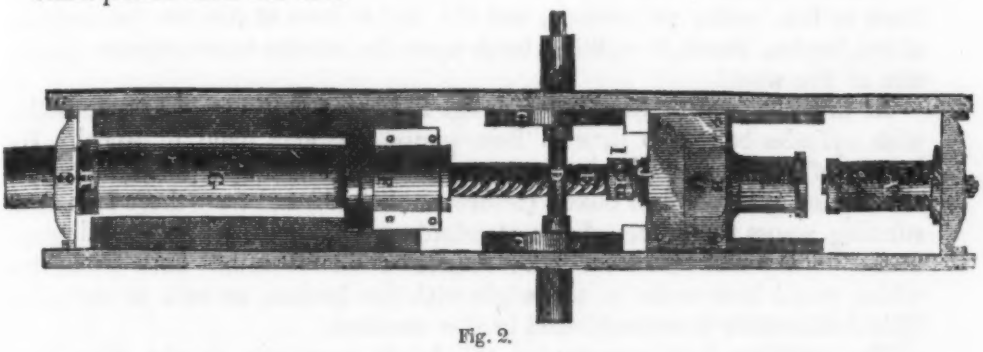


Fig. 2.

Fig. 1 is a view of the whole machine in perspective, and fig. 2 is a top view looking downward, of the swinging frame, which holds the drill, being detached from the machine, and represented upon an enlarged scale. It drills horizontally, vertically, or at any angle with the horizon. The part shown in fig. 2 it may be seen, consists of a stout cast-iron frame playing by two trunnions in two iron boxes, which are raised or lowered (and there securely fastened on each side by a large nut and bolt) between the uprights on each side of the platform; chains from each of the four corners of this frame, (called the "swinging frame," hooked to staples on the platform, hold the frame at any inclination desired.

By means of the band-wheel (fig. 1) the shaft which bears it, passing through the trunnions mentioned, is rotated, turning at the same time the cam wheels, (C C, figure 2;) these cams press against pins fastened securely to, and protruding from, the lower side of the cross-head B; thus, as they turn round, they push the cross-head B back. A is an India-rubber spring, (with 3½ horse-power; the spring is 14 inches long and 5 inches diameter,) which, as the cross-head B is pushed up, is compressed by the "plunger" on the upper part of the cross-head B. This spring is supported by a spindle passing longitudinally through it, and bolted to the upper cross-piece of the frame. When the cams have receded from the pins mentioned, the expansion of the rubber spring drives the cross-head and all it bears with it, forward with tremendous force, chipping off, with the drill, large pieces of granite or other stone. Attached to the cross-head B, and turning loosely in it, is a screw, E, passing down through a left-handed screw in the lower cross-head F. By means of a ratchet-wheel, pall, &c., seen at J, this screw is turned slowly, thus feeding forward the cross-head F, which cross-head bears at its lower side a hollow mandril, G, into the upper part of which the screw E passes. This mandril has a steel drill at its lower end, (fastened in by a set-screw,) made of such bore as may be desired.

When the cross-head F has been screwed down as far as the length of the frame will permit, by means of a straight rack, with a handle applied to the cog-wheel I, (on the screw shaft E,) the cross-head and drill are ready to commence operation again.

At H, on the mandril G, is a ring, (with ratchet-wheel and pall,) and a projection at the lower part of the pall, which slides on a bar (not seen) placed diagonally under the frame, and by this means, as the drill is withdrawn, twisting round the mandril, and consequently the drill. The same simple arrangement at T effects the turning and feeding down of the screw. By

means of a sliding bar beneath the frame, the two diagonal bars are connected, and thus, by the simple and easy rotation of a hand wheel, (on the sliding-bar,) the drill is made to feed forward at the rate of half an inch, or less, or even three or four inches per minute, and the drill to turn at the rate (as desired) of ten, twelve, fifteen, or eighteen teeth upon the ratchet to a complete revolution of the wheel.

At the other end of the platform (fig. 1) is placed an upright steam-boiler with cylinder bolted to it, with force-pump, &c., and band fly-wheel. By means of the sheave wheels (seen at the top of the upright standards) a chain passing to the iron boxes, (before mentioned,) and from there to a shaft running across the braces of the standards, raise and lower the "swinging-frame" to any desirable elevation. A great desideratum has been a machine which would bore rocks at any angle with the horizon as well as vertically. This desideratum is accomplished in this machine.

The machine here represented will be in operation at the New-York Crystal Palace.

The patentee has also a mode of applying this arrangement to drilling the wedge holes for splitting rocks; the saving of time, and use of the water-vial (in consequence of the holes being uniformly straight) must recommend this to all quarry owners; it is applied also in sinking shafts in mines, and must here effect a great saving. A most important application is also made of it to tunneling for railroads, &c. A small portable arrangement, worked by hand, is used for quarries and mine galleries.

Further explanation and information will be given on application to the patentee during business hours, or by letter addressed to him.

JAPAN MANUFACTURES.

WORKS OF ART AND CURIOSITIES, FROM THE COLLECTION OF THE KING OF HOLLAND, EXHIBITED AT DUBLIN.

The following account is from the Dublin correspondence of the *London Daily News*, and will be read with interest.—[Eds.

The unique collection of manufactures, works of art, and curiosities from Japan, contributed to the Exhibition by the King of Holland, demands notice, independently of its intrinsic merits, from the circumstance that it is the first time similar productions have been seen in Europe, beyond the walls of the Museum at the Hague; and an early notice is well deserved, also, because with Dutch punctuality and business-like management, this collection was ready for inspection at the opening of the Exhibition, when all around was confusion and packing-cases.

That branch of manufacture which, from the place of its origin, has in this country obtained the name of "Japanning," is not so largely represented as might have been anticipated; but the comparatively few specimens are sufficient to show that the Birmingham manufacturers have not yet attained so high a degree of finish in this art as the Japanese. It is not that the polish of the varnish is brighter, but there is a perfect evenness of surface that reflects the light equally as from a surface of ground and polished glass, without any of the irregularities so generally observable in English goods of a similar kind. It would appear that the varnish of the Japanese must be of a

superior quality to that of the English; for, judging from a set of tea-cups made of papier maché, that material is accustomed to be used in contact with hot water, without much injury to the surface, and without imparting a disagreeable taste to the beverage. There is a specimen also of a bowl for holding liquids, made of straw japanned, which feels lighter than papier maché, and equally strong. It is evident, indeed, even from the small variety of specimens of this branch of manufacture in the collection, that the Japanese apply the process of japanning to many other uses than we are accustomed to. Among the warlike accoutrements, for instance, there is a highly-finished Japan shield, entirely black, without ornament, which projects in the centre, in the approved form of ancient shields. Whether a ball would glance from the curvature may be very quesionable, but it is at all events well adapted to ward off any missile projected by hand.

The specimens of silks and velvets very clearly show that the Japanese makers of such fabrics can rival the European manufacturer in the quality of the article, however rude may be the machinery they employ for the purpose. Some silken cords, of various degrees of thickness, will also bear comparison with any that can be produced by the improved machinery of England. The wax candles, of which there are several specimens, deserve notice, from the peculiarity of their shape, and the mode of manufacture. They are made of the hardest wax, and are evidently formed by the process of successive dippings, like the wax candles in this country, the unevenness of the surface being in like manner subsequently removed by mechanical means. The peculiarity of their shape consists in their being conical instead of cylindrical, the broader end being placed uppermost. To give additional finish to the exterior, the candles are painted.

The accoutrements of war do not present a very formidable appearance, nor is a figure of a warrior armed cap-à-pié, with a visor over the lower part of his face resembling a demoniacal mask, calculated to excite much alarm in any but little children. The fire-arms are long and heavy, and are not adapted to be fired from the shoulder; the swords are short, with daggers attached, and they are inclosed in clumsy cylindrical sheaths. The armor of mail with which the model warrior is clad is composed of a woven fabric sufficiently thick to resist an arrow or the thrust of a spear. There is nothing in this display of weapons and armor to deter the Americans from making their inroad into Japan, and the only seemingly rational cause of making it a death penalty to take any arms from the island must be to prevent exposure of the defenseless condition of the people. The martial music consists of drums of various kinds, and with them are placed several lutes and guitars, curiously shaped, but there are no wind instruments.

The articles of luxury do not exhibit so much refinement and finished workmanship as those of the Chinese. There are several cabinets, but not one of them is elaborately decorated; the fans are common, and the articles of a lady's toilet, though they indicate the great variety of things requisite in the dressing of a Japanese belle, are rather coarsely manufactured. One cabinet is expressly adapted for smokers. There is a censer at the top to hold fire for lighting the pipe, with drawers underneath to contain the pipes and tobacco. The Japanese *fumeur* is very choice in his tobacco, and remarkably delicate in its use, for the specimens of pipes exhibited—one gold, the other silver—will not hold half of a small thimbleful of the plant. A parasol is, perhaps, more an article of necessity than luxury in Japan, and the specimens of them are certainly not externally ornamental, though they deserve notice from the materials of which they are constructed.

The part that is silk in our parasols is made of paper creased into many folds, the ribs of thin spliced bamboo, and they open and close with great ease. The outer covering is of a dark color, the interior white, which is the reverse of what theory would declare to be the proper colors for repelling heat; but these paper parasols must nevertheless form much better shades than semi-translucent silk.

A collection of Japanese coins, from the largest gold to the smallest silver, forms an interesting part of the collection. The gold coins are oblong, with rounded corners, and the value of the largest is about £50. The smaller of the silver coins are oblong, with sharp corners. Next to the coins are placed specimens of Japanese printing-types. They are made of wood, the body of the type being cylindrical, with the letter at one end, and they must consequently be used separately, and not set up in "form," like our printing types.

Those who are not experienced naturalists may be somewhat startled at the stuffed monsters from Japan. What the unexplored parts of that island may not contain it would be presumptuous to state; but it requires a considerable stretch of credulity to believe in the existence of flying monkeys, and of serpents with monkeys' heads; yet such objects are presented with indubitable skin, hair, and bones; and it is difficult to detect where the skin of one animal has been joined to that of another. To artists so skilled in the manufacture of monsters, the creation of a mermaid would present little difficulty; and though there is not the bodily presentment of one, there is a pictorial representation, which, instead of realizing the poetical idea of such a being, seems to be a literal copy of a mermaid, manufactured by the junction of the body of an ape to the tail of a fish. There are several other specimens which indicate a prevalent taste for monstrosities.

AMERICAN STEAMBOATS ON THE AMAZON RIVER.

A LETTER addressed to the Boston *Traveller*, dated Para, South America, December 22, 1853, gives an account of the trial trip of Dr. Whitmore's new steamers, designed to navigate the river Amazon. Some time ago he took a contract from the Peruvian government, to furnish two or more steamboats suitable for the navigation of the Amazon, a treaty having been made with Brazil with this end in view. Dr. Whitmore came to New-York, contracted for the boats and machinery, superintended their construction, had them taken to pieces and packed in a sailing vessel and shipped for the mouth of the Amazon; all at his own hazard. He then secured a sufficient number of competent mechanics to go out with him, to put the steamers together, and set up their machinery, and on the day of the date of the letter, the enterprise had been so far crowned with success, that the first of these little river boats had made its trip, and appeared off Para, some seventy miles from the mouth of the Amazon.

It was a gala day. The city was astir with joyful anticipations; and the little steamer was received with every demonstration of satisfaction. She was decked with flags, among which the stars and stripes were conspicuous, and bore a gladsome company, some two hundred persons.

THE BENZOLE GAS.

The American Gas Company, 3 Broadway, New-York, are now prepared to supply Benzole to order, in any quantity from thirty gallons upward, and to furnish machines of any size, for making their *improved Benzole Gas-light.*

They are also prepared to dispose of the right to use and vend their invention, patented July 13, 1852, for any district, county, or town in the States of New-York and Pennsylvania, and in nineteen other States south and west of New-York.

The great principle of this invention, as we have before explained, is the burning of any of the hydro-carbons, such as Benzole or its equivalent, either pure, or in combination with water and any alcoholic liquid, by passing through it a current of humid air or aqueous vapor, however obtained.

Any machine that requires humid air or aqueous vapor, can not, therefore, be used for burning Benzole or its equivalent, either pure or mixed with water, and alcoholic liquid, without the license of the American Gas Company or the other owners of this patent in States not held by the company.

No hydro-carbon can be used *economically* for illuminating purposes without the presence of water or moist air. This, Mansfield tested in England by several years' trial, under the patent which we described two months since, and he gave up the problem. It was solved, at last, by the inventor of the principle herein described.

Recent experiments have demonstrated that for twenty-five cents, the same amount of light, for the same length of time, may be obtained from a pint of benzole and a pint of alcohol mixed with a pint and a half of water, that can be obtained from two pounds of Judd's patent sperm candles of six to the pound, the price of which is fifty cents a pound; or, in other words, one hundred cents' worth of their candles.

The transportation of this gas through the ordinary gas-pipes is perfectly feasible, and machines with thirty argand burners, each equal to eight sperm candles or thereabouts, may be had at from $50 to $100, according to the finish.

There are various kinds of machinery suited to furnish this light, for which the American Gas Company will receive orders to be furnished by their mechanician and manufacturer.

Several houses in New-York and the country round will soon be furnished with this light in all its splendor.

Thus, we have proved our own assertions as to the immense importance of this patent, which assertions we made long ago, in private circles, in the face of ridicule sometimes, and always with distrust. The light in the machines of this company is even better than we had anticipated.

We add that if any of our subscribers wish for information, or for any interest in this light, as above set forth, we will act for them, and, under ordinary circumstances, *without charge to them.* If they wish any service especially laborious, we might tax a *very* small fee. But we shall be glad to be the instruments for extending the use of this light over the whole country, and thereby do our friends and the public a great service, while we rejoice in the triumph of perseverance and science in the face of much and powerful opposition. We hope our friends will make known their wishes freely, and without hesitation.

CAST-IRON RAILS FOR RAILROADS.

We recently noticed the examination by Mr. R. W. Hughes of the question, "Why can not cast-iron rails be used for railroads?" We return to the subject again, in order to present the view of it taken by the author:

"An elaborate and able report was made by a select committee of the Pennsylvania Legislature, in 1843, on the propriety of relaying the State railroads with cast-iron rails. This report, together with the facts and arguments in our former article, we deem conclusive as to the commercial and practical adoption of cast-iron rails. It is impossible to controvert them with argument, and we feel just as confident that actual experience will confirm the deductions of the report.

The rapid destructibleness of wrought-iron rails has been more and more apparent from the day the report was made, up to the present time. This results from two causes: first, from the increased weight of the locomotive; and secondly, from the great demand for railroad iron. The latter cause induces a demand for all material which can be made into railway bars; and the consequent hurry in which they are made, withdraws from them that special attention which was devoted to their manufacture in earlier days.

We therefore repeat our conviction, that cast-iron rails may be made which will prove better, in all respects, than most of the English rails we are daily importing.

Why have not cast-iron rails been generally introduced? To this there are several answers, and not one affects their fitness for this purpose. Since the introduction of railroads, the world has never stood still long enough to think. A railway mania pervades the land, and it has crushed every obstacle which has opposed it. Reflection would have required time, and none of the persons or States which have been engaged in the eager race of internal improvement, would consent to exercise it, but preferred imitation. Hence, the fact, that the railway system has undergone no positive changes since its first introduction, with the exception of the now *universal adoption of cast-iron wheels instead of wrought-iron*, a matter taken up, as it were, on the wayside, in order to supply the absolute demand for constant repairs resulting from the use of wrought-iron wheels.

Secondly. Whose duty was it to introduce cast-iron rails? That of chartered companies, in which it was every man's business who had a personal interest in the road, and what is every man's business, is generally regarded as no body's.

The construction of roads is always left to the engineer, and suggestions as to the mode of building them would be expected to come from him. But he, like the rest of the world, has had little time for study and reflection, and, deriving a comfortable living from the present plan of railways, would not be apt to originate suggestions where failure would involve him in loss of professional reputation.

Captain Moering, an engineer in the service of Austria, writing upon this subject, says, 'He eagerly sought, in this country, from engineers and others conversant with the subject, information relative to cast-iron rails, and after a deliberate examination of the questions which arose, he was impelled to the conclusion that *cast-iron rails had not been rejected from the American railways in consequence of any defect inherent in that material*;' but that 'this rejection, or omission, appears to have resulted partly from the surprising

celerity with which these works were simultaneously urged forward; partly from the inexperience of many of the engineers, necessarily employed, in consequence of the great demand at the time for men of that profession having induced a number of unqualified persons to throw themselves into it; partly from a want of due deliberation consequent upon the rapid progress of the railways, which favored imitation, rather than reflection; partly from the vigor with which rolled-iron rails, *then exempt from duty by law*, were pushed into use in every quarter of the country by interested parties; and partly from a long chain of fortuitous circumstances, which conduced to the results we have witnessed, *without deciding the merits of the technical questions involved.*'

If railroads were private enterprises, we have no doubt cast-iron rails would long since have been brought into use; for the projector being the owner, upon him alone would fall the failure; but with chartered companies, each member is unwilling to take the responsibility of suggesting any thing new, for fear of failure.

Upon an examination of the report, as well as our references in a former article, it will be seen that the only suggestions heretofore made, and deemed sufficient to render cast-iron rails entirely suitable for railways, were, first, to lay them on continuous wooden sills; secondly, to increase the weight of the cast-iron over the wrought-iron rail, in the proportion of six to seven; and, to make assurance doubly sure, as it is expressed, to cast, as suggested by Mr. Morris, a small wrought-iron rod in the top table of the cast-iron rail, so as to keep the parts together in the event of fracture.

At first view, this seems a great additional safeguard, and ought to have insured the adoption of cast-iron rails; but we are assured by one who has paid a great deal of attention to the subject, that the suggestion was impracticable—the rod, upon coming in contact with the melted iron, being twisted by expansion out of line with the cast-iron at many points. Besides, it is questionable whether so small a rod would not itself become so much hardened, as to impart but little additional strength to the cast-iron. That the rod would not be kept in line, one time in ten, when merely laid in the mould, he satisfied himself by actual experiment. This may have had its effect on the recommendation contained in the report we publish.

But the other suggestions render the use of cast-iron rails entirely practicable; and we have lately seen a section of cast-iron rails, with a wrought-iron rod cast throughout their centre, a feat which has been rendered practicable by a very simple device, and which enables the road to be so constructed that it is impossible, even in the event of a fracture of one of the rails, for it to get out of place. If, therefore, the rails be laid on continuous wooden bearings, the fracture of the rail would only make another joint to it, and nothing more. There is thus provided, what we believe every practical man will pronounce, who will examine it, a far better and more economical material for our railroads than the present wrought-iron rails.

We, therefore, in this substitution of cast-iron for wrought-iron rails, propose a protective tariff, such as no one can reasonably oppose.

We say the State, in building her railroads, should use for that purpose her own iron, particularly when she has often to dig it up out of her way to locate the track, of a far better quality than she can import.

And while she may not deny to her railroad companies the privilege of using what iron they please, or buying it where they choose, she can simply say, I can not be a partner with you, unless you agree to use cast-iron, after demonstration of its fitness for rails."

NEW MODE OF APPLYING THE BRAKES.

THE following statement relating to a very important matter is from the *Boston Traveller:*

"It appears that on Thursday, by special invitation, a large number of gentlemen assembled at the depot of the Boston and Worcester railroad, for the purpose of witnessing experiments with a new rail-car brake operator. The improvement consists in the application of a powerful spring to the work of turning the brakes, instead of by hand as heretofore. The spring is contained in a square box at the top of the car, from which a shaft runs down and connects with the brake beneath the car. A wire chain runs along the top of all the cars, and connects with every box, so that the engineer, by pulling the end of the wire, can remove the check from every spring at the same instant, allowing the springs to operate and stop the train. The springs have to be wound up with a few turns of a lever before every operation, but this is but the work of a moment.

The train consisted of five cars, and was accompanied by an extra engine. On the way out, the engineer applied the brakes twice, in both cases with success. At Cambridge-crossing, the company, among whom were many eminent gentlemen, left the cars, and took places at the side of the road, where the experiment could be witnessed with the greatest facility. The engine and cars then went up to the Brighton station for the purpose of getting sufficient headway, and came thundering back again at the rate of between thirty-five and forty miles an hour; owing to the fact that the engineer had neglected to make a slight reärrangement suitable to the reversed direction of the train, the brakes did not operate, and the train passed on half a mile toward the city before it could be stopped by the application of the brakes in the ordinary way.

This only served as a contrast to the second experiment, in which, after again attaining a tremendous headway by approaching from a distance, the train rushed toward the crossing; at a signal from the flag of Mr. Twitchell, the superintendent, who stood by the roadside, the engineer sounded his whistle and pulled the break-wire. Numerous gentlemen were holding their watches, and some counted but eight seconds, and others but nine seconds between the giving of the signal by Mr. Twitchell, and the complete stoppage of the train; the train, even at the speed of thirty-five miles an hour, going only eight feet more than its own length before coming to a stand-still.

A third experiment was then tried, in which the rear car was suddenly disconnected from the train by raising the coupling and inclosing the wire above. The brakeman on the last car set the spring in motion, and stopped the car so suddenly as almost to throw off several operators who were standing on its platform, while the train passed ahead. The wire-chain is coupled between every car, but if a car should accidentally break loose from the rear, the jerk upon the wire would operate the brakes without further intervention, and stop all the cars. These operators do not interfere with the ordinary mode of applying brakes, as either mode can be worked independently of the other.

Such an arrangement as this, working as well as it did to-day, would have given the means of preventing such an accident as that at Norwalk last summer, even when the train had come within its own length of the draw, and its successful application must be the means of preventing many similar accidents in the future. There is no disagreeable jerking where a whole train is thus stopped, although there might be in the case of a single car.

FAMILY MARKETING.

THE following table gives the retail prices of the principal articles of farm produce in the city of New-York, on Wednesday, March 15:

BEEF.			
Hind quarters, per lb	10	a	—
Fore quarters, per lb	8½	a	—
Porter-house steaks, per lb	16	a	—
Sirloin steaks, per lb	14	a	—
Rump steaks, per lb	12½	a	—
Roast pieces, each	10	a	14
Corned, per lb	9	a	12½
Tongues, each	75	a	—
Mutton car., per lb	9	a	—
Mutton, per lb	10	a	12
PORK.			
Carcases	8 00	a	—
At retail, per lb	11	a	12½
Hams, smoked, per lb	12½	a	14
Shoulders, do., per lb	10	a	11
Sides, do., per lb	11	a	12½
Pickled, per lb	10	a	11
Sausages, per lb	12½	a	—
Head-cheese, per lb	12½	a	—
Pigs, roasting, each	1 50	a	2 50
VEAL.			
Carcases, per lb	8	a	10
Fore quarters, per lb	10	a	—
Hind quarters, per lb	12½	a	—
Cutlets, roasts, per lb	16½	a	—
VENISON.			
Saddles, per lb	15	a	18
Fore quarters, per lb	4	a	7
Retail, per lb	18¾	a	—
POULTRY.			
Turkeys, per lb	13	a	15
Rhode-Island do., per lb	15	a	18¾
Geese, per lb	11	a	13
Ducks, (tame,) per pair	1 25	a	2 25
Chickens, per lb	14	a	15
Fowls, per pair	1 00	a	1 75
Guinea, per pair	62½	a	87½
Pigeon squabs, per doz	2 25	a	3 00
Wild pigeons, per doz	1 00	a	1 50
BIRDS.			
Wild turkeys, each	1 50	a	3 00
Ducks, canvas backs, per pair	1 00	a	1 50
Ducks, gray and teal, each	25	a	37½
Widgeon ducks, per pair	62½	a	87½
Brant, each	75	a	—
Wild geese, each	1 00	a	1 25
Prairie hens, per pair	1 00	a	1 25
Mallard duck, per pair	1 00	a	—
Black duck, per pair	62½	a	87½
Red-head duck, per pair	1 00	a	1 25
Capons, per lb	16	a	18¾
Bucks county, per pair	1 00	a	2 00
Broad bills, per pair	50	a	62½
Rabbits, each	25	a	31¼
Squirrels, each	12½	a	18¾
Hares, per pair	75	a	87½
HOUSEHOLD PRODUCTS.			
Eggs by barrel, per doz	18¾	a	—
By retail, 7 for	12½	a	—
Orange county butter, per lb	28	a	30
Delaware county butter, per lb	25	a	28
Cheese, in boxes, per lb	10	a	12
By the pound, per lb	11	a	14
Pine-apple cheese, each	1 13½	a	—
Sap sago cheese, per lb	25	a	—
Lard, by tub, per lb	11½	a	12½
City made, retail do	14	a	—
FISH.			
Halibut, per lb	12½	a	—
Pike, per lb	12½	a	—
Pickerel, per lb	12½	a	—
Muscalonge, per lb	12½	a	—
Bass, per lb	10	a	12½
Smelt, per lb	10	a	—
Codfish, per lb	6	a	—
Eels, per lb	12	a	—
Flounders, per lb	6	a	—
Savannah shad, each	75	a	1 00
Salt mackerel, per lb	8	a	18¾
Salt shad, per lb	8	a	18¾
Haddock, per lb	6	a	—
Frost fish, per lb	6	a	—
Sunfish, per lb	6	a	—
Salmon, fresh, per lb	1 00	a	—
Salmon, smoked, per lb	12½	a	15
Codfish, dry, per lb	5	a	—
Terrapin, per doz	10 00	a	12 00
Oysters, in shell, per hun	62½	a	2 00
Clams, round, per hun	37½	a	1 00
Crabs, per doz	25	a	—
VEGETABLES AND FRUIT.			
Apples, per bbl	4 50	a	5 00
Apples, per half peck	50	a	75
Apples, dried, per lb	6	a	—
Apple sauce, shakers, in pails, two gals	1 00	a	—
Pears, dried, per lb	9	a	—
Peaches, dried, per lb	12½	a	—
Plums, dried, per lb	15	a	—
Cranberries, per bbl	6 00	a	10 50
Cranberries, per half peck	50	a	62½
Potatoes, com., per bbl	3 00	a	3 75
Potatoes, per basket	1 25	a	1 50
Sweet do., per basket	2 25	a	—
Sweet do., per half peck	62½	a	—
Turnips, white, per bushel	62½	a	—
Turnips, Russia, per basket	87½	a	—
Beets, per basket	50	a	62½
Carrots and parsnips, per basket	75	a	—
Onions, white, per bushel	1 12½	a	1 25
Onions, red, per bushel	62½	a	—
Cabbage, wholesale, per 100	5 00	a	10 00
Cabbage, retail, each	12½	a	15
Lettuce, per head	6	a	8
Celery, per bunch	12½	a	15
Spinnach, per half peck	25	a	
Pumpkins, each	62½	a	1 00
Beans, Lima, shelled, dry, per bus.	7 00	a	—
Tomatoes, quart cans, per dozen	2 50	a	—
MISCELLANEOUS.			
Bologna sausage, per lb	25	a	—
Beef tongues, each	68¾	a	75
Tripe, per lb	6	a	—
Tripe, pickled, per lb	6	a	—
Maple sugar, cakes, per lb	18¾	a	—

SHOE BUSINESS.

THE following statements illustrate the benefit of a variety of pursuits, and especially of mechanic trades:

A BUSY AND GROWING PLACE.—The population of Milford, in Mass., at present exceeds 7000. The number of buildings erected last year was 78, valued at $173,200. The number of boot manufactories is 40, which turns out 1,450,198 pairs. Their value in 1853 was $2,594,346. Number of firms engaged in mercantile business last year, 46, the amount of whose business was $1,050,800. Amount of woollen manufactures, &c., $285,000. Total business, $4,103,346.

The Legislature has just passed a bill to establish a police court in Milford, and the judge's salary is to be $300—not a very tempting inducement; yet, it is said there are several anxious competitors for the appointment.

THE SHOE BUSINESS IN HAVERHILL.—The *Haverhill Banner* says there are more than two hundred different kinds of shoes manufactured in that town, from the brogan to the finest kind of ladies shoes, the sales some days amounting to from seventy to eighty thousand dollars. It is estimated that there are at least five million pairs manufactured annually, the shoe business of the place being only second to that of Lynn, the great shoe-mart of the country."

SOFTENING HORN.

"CAN horn be so softened as to be moulded into any required shape, or pressed into moulds? And can it be made white, or is white horn to be purchased?"—QUERIST.

Horn may be softened by a degree of heat not exceeding melted lead, and may afterwards be moulded into any required shape. The horn handles of knives, razors, &c., are now commonly made by moulding. The softened horn is first pressed into a mould or die, which is then inclosed in a nut-cracker sort of clamp, and the die, clamp, and horn immersed in boiling water for a few minutes, after which the clamp is screwed as tight as possible, by means of a screw attached to the end opposite the joint. In about twenty minutes, the horn is taken out and finished. It is commonly dyed of various colors, and may also, we presume, be blackened, though we do not recollect to have seen any articles of white horn. Ivory is usually whitened by boiling it in pearl-ashes and water; and perhaps horn may be so also.—*Mechanics' Magazine.*

NOTICES.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The next meeting of this Association opens at Washington on Wednesday, the 26th of April, and not on the 30th, as stated in the May number of the *American Journal of Science.*—EDS. AM. JOUR. SCI.

OCULIST.—Dr. Roehrig, now employed in the foreign department of the Astor Library, announces himself as "oculist and special physician for amaurosis, even in cases of complete blindness." He is a gentleman in manners, of most extensive learning, is familiar with the theory and practice of Eastern and European physicians, among whom he has passed several years. He can not fail to receive a liberal patronage. His rooms are 387 Fourth street.

EDITORS' JOTTINGS AND MECHANICAL RECORD.

THE SUGAR MANUFACTURE.—The following interesting account of the first attempt to make sugar in Louisiana is from the report of the United States Patent Office for 1847:

Judge Rost, in his address before the Mechanical and Agricultural Association of Louisiana, gives an interesting description of the first attempt to make sugar in Louisiana, which shows from how small beginnings the great crop now raised of this article has proceeded. He says:

"How is it with the sugar-cane in Louisiana? It was introduced here at an early day from the West Indies, and cultivated to a small extent at Terre aux Bœufs, and in the neighborhood of New-Orleans. No body at first imagined that sugar could be made of it. The juice was boiled into syrup, which sold at extravagant prices. In 1796, Mr. Bore, residing a few miles above New-Orleans, a man reputed for his daring and his energy, formed the desperate resolve of making sugar. He increased his cultivation, put up the necessary buildings and machinery, and procured a sugar-maker from the West Indies. The day appointed for the experiment was come, and the operation was under way. The inhabitants of New-Orleans and the coast had assembled there in great numbers; but they remained outside of the building, at a respectable distance from the sugar-maker, whom they looked upon as a sort of magician. The first strike came, and he said nothing; this they thought fatal, but still they remained fixed to the spot. The second strike was out; the sugar-maker carefully stirred the first, and then, advancing toward the assembled crowd, told them with all the gravity of his craft, 'Gentlemen, it grains.' 'It grains!' was repeated by all. They all rushed in to see the wonder; and, when convinced of the facts, scattered in all directions, greeting every body they met with, 'It grains!' And from the Balize to the Dubuque, from the Wabash to the Yellow Stone, the great, the all-absorbing news of the colony was, that the juice of the cane had grained in Lower Louisiana. It did grain; it has continued to grain; it grained the last season at the rate of 215,000,000 pounds; and, if no untoward action of the government prevents it, in ten years it will grain to the extent of more than double the quantity."

TALBOT'S ROCK-BORER.—This machine is, in effect, a huge seventeen-feet auger, slowly turning at the rate of one revolution per hour, and advancing at the same time from four to eight inches per hour, according to the solidity of the rock perforated. The common auger, as every one knows, is fitted with two fixed cutters, vertical to its centre, each cutting its way spirally into the wood. The cutters of this auger, four in number, are likewise fitted vertically to the centre, and cut their way spirally into the rock, with the combined revolution and advance of the machine. The only difference is in the construction of the cutters, which we shall presently attempt to explain.

The principal parts of the machine are as follows: A carriage of massive iron resting on ways, and pushed forward at the rate above named, by means of a screw, turned by a simple contrivance similar to that which propels the carriage of a saw-mill, which is readily graduated to produce any desired speed, from two to twelve inches per hour. Upon this carriage rests all the machinery, engine included, and its total weight of 150,000 lbs. affords a sufficiently steady basis of operations to prevent the slightest perceptible tremor. 2. A great face-plate like that of a lathe, circular and vertical, resting and revolving on a hollow shaft large enough to admit the play of a horizontal beam, piston-like, through its cavity. 3. Four sectors, (as if a wheel were divided into quarters,) with their apexes hinged upon the face of the plate in such positions, equidistant, as to bring their segments of circumference at right angles to each other, meeting at the centre of the plate. The horizontal beam above mentioned connects by an arm with each of these segments, at their corners, which meet at the centre of the plate; and, in playing back and forth, causes each to vibrate in a segment of a circle which passes through half the diameter of the tunnel, the

four meeting at the centre. 4. The circumference of each sector is armed with three small wheels having teeth, not unlike circular saws, set obliquely, so as to strike the face of the rock in the same direction as a stone-cutter's chisel, and to act upon it in substantially the same manner, as they are rolled upon it back and forth by the vibratory swinging of the sectors. Each cutter in succession thus steadily carves away its proper thickness of rock, as it swings back and forth from the centre to the circumference of the tunnel, urged against the rock by the slow advance of the carriage, and borne around by the revolution of the face-plate. The thickness of the shaving carved away by each cutter, varies from one to two inches, according to the hardness of the rock.

Four cutters, passing around once in an hour, and each cutting one and a half inches deep, make, of course, a progress of six inches per hour, which is the rate now made at Harlem. It is said that, after allowing for all necessary interruptions, the machine may be run steadily for twenty hours out of twenty-four, making a progress of ten feet per day. Sixty horse-power of steam, two engineers, and two men to shovel out the broken rock, comprehend the expense of working the machine at this rate; to which the expense of keeping up the cutting-wheels is the only additional item of importance which seems necessary to be added.

Publications delayed by Fire.—A disastrous fire broke out in No. 8 Spruce street, New-York, on the night of the 4th of March, destroying Nos. 8, 10, 12, 14, and 16. Amongst the publishing offices destroyed, were *The Independent*, by J. H. Ladd; *Ladies' Wreath*, by Burdick, Reid & Co.; *Christian Diadem*, by Z. P. Hatch; and the *Popular Educator*, the *Historical Educator, Cassell's Natural History*, and the *Magasin Pittoresque*, by Alexander Montgomery. These parties have all suffered more or less by the fire, and the works of some of them will be delayed in consequence. But from the business character and energy which have distinguished them heretofore, we may expect that the interruption will only be temporary. The public may soon expect to see these several works appearing with their accustomed promptness, while our readers, like ourselves, will sincerely sympathize with their unfortunate publishers in the severe calamity which has befallen them.

How to mend Broken China or Glass-ware.—Mrs. William Shelton, of Frankford, Pa., sends us the following recipe for mending broken china or glass-ware: we do not know that the discovery is original with Mrs. S., but she has long used it with invariable success. Take unslaked lime, made fine by pounding or grinding, which mix with the white of an egg to the consistence of starch or paint; thoroughly cleanse and dry the edges to be united, then apply the mixture to the parts to be cemented, place them together firmly, and let them become perfectly dry. Articles thus mended can be handled or washed without injury.

Ammonia in Rain-water.—From experiments by Mons. Boussingault, Lower Rhine, it appears that the rain of the country contains less ammonia than the rain of the city, and that it is more abundant at the beginning than at the end of a shower. He has also found that dew contains ammonia. The proportions, by several trials, were six milligrams to the litre. On the 14th and 16th of November, a thick mist prevailed, so rich in ammonia that the water had an alkaline reaction. A litre of the water contained about two decigrams of carbonate of ammonia.

Durability of Wood.—The piles under the London bridge have been driven 500 years, and on examining them in 1846, they were found to be little decayed. Old Savoy Place, in the city of London, was built 650 years ago, and the wooden piles, consisting of oak, elm, beech, and chestnut, were found upon recent examination to be perfectly sound. Of the durability of timber in a wet state, the piles of a bridge built by the Emperor Trajan, over the Danube, afford a striking example. One of these piles was taken up and found to be petrified to the depth of three fourths of an inch; but the rest of the wood was not different from its former state, though it had been driven 1600 years.

THE UMBRELLA TRADE.—A recent visit to the United States Umbrella Manufactory, 292 Pearl-street, owned by Mr. James Woods, impressed us with the vast extent of this branch of American industry, which, within a few years, has more than quadrupled. The establishment of Mr. Woods is one of the largest in the country, and his wares, from their deserved popularity for beauty and durability, find their way to every part of our country. Mr. Woods purchases his own materials himself, and gives his personal oversight to their manufacture into umbrellas. His well-known character for integrity and uprightness fully warrants us in commending his establishment to the public, as one where they will find a good article at a fair price; and where, too, any statement made by the salesman can be relied upon with the most implicit confidence.

DRESS-MAKERS' AND MILLINERS' GUIDE.—A work of the foregoing title, with several numbers of which we have been favored, is published by S. T. Taylor, 307 Broadway, at $4 per annum. It contains beautiful and accurate fashion-plates, besides patterns cut out of paper, which accompany each number. Our "gude wife" says that no family should be without it, and that it is worth triple its subscription price to ladies who have families, and who are at all tasty about their dress. The high estimation in which she holds the work, warrants us in recommending it to all our readers as indispensable to family economy.

LADIES' NATIONAL MAGAZINE.—Mr. T. B. Peterson, 102 Chestnut street, Philadelphia, publishes a magazine with the above title devoted to the interest of the ladies, which is really a meritorious work. It is only $2 per annum, and is a richly-embellished periodical, filled with choice reading matter, adapted to the taste and gratification of those for whom it is particularly intended. Mr. Peterson adds a premium of a rich collection of engravings to all new subscribers.

GODEY'S LADY'S BOOK.—Age seems to impart vigor and beauty to this pioneer in a pure and eminently useful periodical literature. Godey, for March, and for all the months of the year, is entertaining and sprightly, and embellished to a degree that defies competition, and almost challenges credulity. Published by Louis A. Godey, 107 Chestnut street, Philadelphia, at $3 per annum.

ARTHUR'S HOME MAGAZINE.—Our friend Arthur, on whose reputation the sun never sets, makes a selection from the columns of his *Gazette*, which he imposes into a monthly, with the above title. The idea is a good one, and enables him to give to the reader a very large amount of literary matter at a comparatively low rate—$2 per annum. A few handsome steel engravings, added to the numerous wood-cuts with which the work abounds, give it a place beside the most respectable periodicals of the day, and must render it a very acceptable monthly visitor. Published by T. S. Arthur & Co., 107 Walnut street, Philadelphia.

IMPROVED HARROW.—W. B. & G. M. Ramsay, of South Strabane, Pa., has taken measures to secure a patent upon an improved harrow, the nature of which consists in constructing a harrow of three separate parts or squares, so arranged that one of their diagonal lines will run parallel to the line of travel, and the other transversely thereto, securing a greater breadth of sweep than a harrow composed and jointed, as is common in these implements.

COAL FOR BURNING BRICK.—Recent experiments made with Cumberland and anthracite coal in the burning of brick, have shown that this fuel is peculiarly adapted for this purpose, and that it can be used advantageously and economically, as compared with pine wood. Three several experiments were made in Baltimore and Philadelphia by persons engaged in the manufacture of bricks, and the results were the saving of three days' time in the burning of such kiln, and one dollar and ten cents per thousand on each thousand burned.

UNITED STATES STOCK.—Taking the last census as the basis of calculation, there are at this time about six hundred millions dollars' worth of live stock in the United States. Their value exceeds that of all the manufacturing establishments in the country, and also exceeds the capital employed in commerce, both inland and foreign.

THE Patent Extension Bit, made by Mr. C. L. Barnes, of this city, is an article that will be appreciated by a large class of our mechanics. A set of three simple bits will perform all that thirty-one ordinary bits of one sixteenth of an inch sizes can be made to do, beside cutting any size between, from a quarter of an inch to two inches and one eighth diameter. See advertisement.

MENEELYS' BELLS.—The bells from the extensive establishment of Messrs. A. Meneely's Sons, West Troy, N. Y., received at the World's Fair, recently held in the city of New-York, the *highest premium* or *only silver medal* awarded for bells.

Their church, factory, steamboat, school-house, and plantation bells, as well as their chimes, were adjudged by the committee to be "the *best* in fullness and richness of tone, clearness of vibration, and workmanship" of any on exhibition.

The Messrs. Meneely attach the more importance to the decision, from the fact that the bell-founders of Europe were represented at the Crystal Palace, as well as those from the United States.

ELECTRIC WEAVING-MACHINE.—The *Commerce Sericole*, a French paper, gives an account of a remarkable invention, by which it is proposed to utilize the electric current in the process of weaving. It remarks that the Jaquard loom, although an admirable invention, is not without certain difficulties and defects. Thus, for each passage of the shuttle there must be a piece of card-board of certain breadth, pierced with holes arranged so as to correspond with the design. To direct the electricity, a series of points is arranged in a line like the teeth of a comb, each point communicating with an electro-magnet. The weaver will only have to pass underneath these points the design, traced in varnish on a cylinder or on a metallic leaf, in communication with the battery. The current will pass only where the varnish is wanting, and it will be the corresponding threads only which will remain suspended, and which by that means will reproduce the design as it came from the hands of the artist. It is estimated that this new mode will insure a saving in the most complicated designs of nearly three fourths of the expense, and in others of at least one half.

The inventor of this method is Signor Bonelli, the General-Director of the Sardinian telegraph. In the Jaquard loom, the figures are produced by a movement on a pedal operated by the weaver himself, instead of employing children, as in the old way, to draw the threads under the loom. This improved method, however, is not without defects. For instance, with the passage of every thread, a cartoon of a certain size is necessary, pierced with holes, arranged so as to correspond with the design. But these operations are expensive, and the machines are very liable to get out of order. They are also very noisy, and occupy much room.

All these difficulties are prevented by the application of electricity. It avoids the use of complicated mechanism, of cartoons, and in fact, of machinery almost altogether. The threads are raised by a pedal, as with the present arrangement, and by means of a fine copper wire, are subjected to a current of electricity, which does the work at once.

The necessary steps to procure a patent for this invention in Europe and the United States have been commenced, and as soon as they are completed, the *electrical loom* will be exhibited to the public at Turin.

HATS.—A good hat not only promotes the comfort, but also the personal appearance of its wearer. This being the case, it becomes a matter of some moment to know where a good article can be found. Beebe & Co., 156 Broadway, have an established reputation for furnishing the most beautiful, durable, and the cheapest hat manufactured in New-York. We have used their hats for a long time, and only add our testimony to that of many thousands of others, in awarding them the foregoing unqualified commendation.

NEW WHEELBARROW.—An Englishman has invented a new wheelbarrow. The wheel is placed under, and is sunk into the bottom, so that there is less oscillation. By means of this barrow, it is stated that twice the usual weight can be wheeled.

Bending Timber.—An exhibition and trial of the model machine of the Ship-timber Bending Company, took place lately, at the office of the Company, in Trinity Building, and was witnessed by a considerable number of ship-builders and other persons interested. Experiments were made with pieces of wood of various sizes, mostly of live oak, which were easily bent in any desired curve, without steaming. The leading principle in the process consists in the application of an "end pressure" to the timber, at the same time that it is compressed and turned, thereby destroying the capillary tubes by forcing them into each other. The model employed was one twelfth of the size of the working machine. It is alleged that there is no longer a necessity for searching the forests for crooked sticks suitable for ship-building, as all timber, under the new process, is equally serviceable; and it is claimed that the bent timber is stronger, and less liable to defect than the crooked and cross-grained pieces ordinarily selected. Cabinet-makers can also be furnished with materials suitable for their purposes. A thick piece of black walnut was shown at the office, which has been bent in the form of an ellipsis, the two ends meeting. Mahogany, and other woods equally brittle, are said to bend with the same ease. So far as we observed, the spectators were well satisfied with the result of the trial. Mr. Jarvis, timber inspector and measurer at the United States Navy Yard, Gosport, expresses the opinion that the whole frame of a ship, except perhaps the floor-timbers, will ultimately be bent in this way.—*New-York Journal of Commerce.*

Important Means of Lubrication.—We are informed by the *London Mining Journal* that Mr. John Flick, of Bolton, has patented a new plan of lubricating revolving-shafts, axles, &c. At or near the centre of the step of bearing, and at about right angles to the axis, a groove is formed both in the upper and lower portions of it, thus extending all round the journal. The lower part of this groove forms a receptacle for the lubricating fluid, and there is another small horizontal groove formed in the step, parallel with the axis of the shaft. A metal ring is placed loosely on the shaft, and is carried round with it by means of the friction of the surfaces; the lower part of this dips into the fluid, and is constantly passed to the upper part of the shaft, carrying supplies of the fluid, which becomes attached to its surface.

Potato-Planter.—Alexander Anderson, of Markham, C. W., has invented an improved potato-planter. His machine has an endless apron at the bottom of a hopper, which is provided with a series of apertures, which receive the potatoes and carry them to the discharge spout, through which they fall into the furrow at equal distances. These apertures also convey those potatoes which are too large for seed, to a knife at the bottom of the hopper, by which they are cut into pieces of suitable size. The inventor has applied for a patent.

State Agricultural School and Farm.—A meeting of the Maryland State Agricultural Society was held recently at the rooms of the Society, in the American Building, which was called to order by J. Howard McHenry, Esq.; C. B. Calvert, Esq., President of the Society, occupied the chair. The Committee appointed at the last quarterly meeting of the Society, to whom was referred the duty of preparing a plan for the establishment of an agricultural school and farm, submitted their report, which was read. After a few remarks from Hugh Gelston, Esq., the charter of incorporation was read, when a supplement was presented, granting greater power to the Society, and providing for the purchase and furnishing of an experimental farm, and providing for its stock to be divided into one thousand shares, at the rate of one hundred dollars per share.

The President thought the charter was a very liberal one, but some action was necessary by the Legislature. When the stock was sold to persons outside of the Society, it might be voted away by the by-laws of the Society, and it was necessary to prevent that to have it controlled by a majority of the stockholders. That course would throw a guard round it, and many gentlemen, not members of the Society, could purchase in the stock of the farm without any fear whatever. No particular form of supplement to the charter was fixed upon, but it was determined to apply to the Legislature for an extension of the powers of the incorporation.

THE LARGEST ENGINE.—Messrs. Stillman & Allen, of the Novelty Works, of New-York City, are now constructing the largest engine that was ever built in this or any other country. The diameter of the cylinder is 105 inches, and the length of stroke 12 feet. It is designed for the Bay State Company's new Fall River boat, which is to run in connection with the Fall River and Boston railroad.

SPIDER ARCHITECT.—The nest of a tarantula (spider) has been found in California of the most singular construction. It is about three inches in length, by two in diameter, built of adobes, the walls being nearly half an inch thick. Inside is a projection, which nearly divides into apartments, about an inch in diameter. The inside is lined with a white, downy substance, not unlike velvet, and presents one of the cleanest and most tidy little households imaginable. But the most curious part of it is a door, which fits into an aperture and closes it hermetically. The door is secured by a hinge, formed of the same fibrous substance as the lining of the house, upon which it swings with freedom. The nest is occupied by a dozen little tarantulas, which seem to subsist upon a yellow secreted substance that appears upon the walls of the front apartment. The arrangement of the door for the protection of the little inmates indicates great instinctive architectural knowledge. It is the intention of the finder to forward this curiosity to the Smithsonian Institute at Washington.

THE SPRINGFIELD, MOUNT VERNON, AND PITTSBURGH RAILWAY.—From Springfield to Delaware, forty-eight miles, the grading, masonry, and bridging is nearly completed, and will be entirely done by the 10th or 15th of October. The ties, iron rails, spikes, and chairs are all in readiness. The track-laying was commenced at Springfield, and has progressed fifteen miles, and will be completed to Marysville (32 miles) in 40 or 50 days. The track-laying was commenced at Delaware the present week, and will be completed west to Marysville in from 40 to 50 days.

From Delaware eastward to the intersection with the Ohio and Pennsylvania Railroads, 54 miles, the road was let last winter for all the work and materials, excepting the iron rails, and chairs, and the work was commenced in the spring, and has been prosecuted vigorously. It is in the hands of as good contractors as any known in the Western country, and it is not doubted but that the grading, masonry, and bridging, will be ready for the superstructure as early as April or May, so that this part of the road may be brought into use in the summer or fall of 1854.

THE PANAMA RAILROAD.—The whole length of this road from Aspinwall on the Atlantic side, to Panama on the Pacific side, is 49 miles. It crosses an elevation of 276 feet above high tide at Aspinwall, which will be graded down to 250 feet. The general direction and course of the road from Aspinwall to Panama, is from north-west to south-east, a direction hardly anticipated by those acquainted with the topographical peculiarities of that region. The gauge of this road is five feet, and the sharpest curve one of fifteen degrees. The iron is brought from Wales, and is what is called the heavy W rail, but some T rail will be used. It strikes the Chagres river about seven and a half miles from Aspinwall, and follows the general course of the river to three miles above Gorgona, where it leaves the river, and continues in a south-east direction to the height of land between the two oceans, in the direction toward Panama. It crosses the Chagres river at Barbacoas, the present terminus of the road, where a substantial bridge, 624 feet long, with three piers, is now erecting, the timber and wood-work of which is constructed at Darien, Ga. There will be no grade on the road over the 50 feet to the mile, except for one mile, where it is 70 feet.

PORT-MONNAIES, &c.—We notice that our friends, Messrs. Zurn and Rantle, 14 John street, of whom we made mention lately, in our account of the Crystal Palace, have received a premium for the goods they exhibited in the Crystal Palace. This agrees with our opinion of their merits, as before stated. They are excellent workmen, and very courteous and obliging gentlemen. Some of our New-York acquaintances do not sufficiently appreciate either of these traits, judging from the exhibition which they make.

Flying almost.—A curious spectacle (says the Paris *Pays*) was witnessed in the great avenue of the Champs Elysées the day before yesterday. A well-dressed person appeared, with a great number of bladders, each nearly filled with pure hydrogen gas, covered with a net-work of silk, and attached to his body by means of a strap fastened to a belt beneath his arms. The bladders possessed a sufficient ascensional force to diminish the weight of the man by three fourths, without lifting him from the ground. Thus lightened, he was able to take leaps of five or six yards at a time with extraordinary rapidity. After descending the great avenue from the quartier Beaujon to near the Palace de l'Industrie, he returned in the way he came. A vast crowd followed him, and seemed astounded at his feat.

Improvement Claimed.—Mr. W. Rice, of Boston, Lincolnshire, has patented an invention which will tend greatly to decrease the labor of draught-horses. It consists of a spring-link, formed of steel or india-rubber, attached to the traces, hame-chains, or any part of the harness, so that, instead of a horse taking a dead pull at starting, and frequently coming down, the load is gradually admitted to the shoulder.

New Coal Fields.—Professor C. T. Jackson, of Boston, has been lately engaged in an exploration of some new coal-fields at Deep River, N. C., about forty miles from Fayetteville, and reports that there is a rich deposit of coal there well worth working.

Obstructing the Sidewalks.—Teamsters in most of our cities need information on the rights of foot-passengers. It often happens that a teamster, wishing to unload his team, will back it across the sidewalk to the door of a store, without any regard to the convenience of pedestrians. In the police court this morning, James A. Douglass, charged with obstructing the sidewalk in Atkinson street, in this manner, was fined $5 and costs.—*Boston Paper.*

Crystal Palace.—Circumstances have compelled us to omit, for this month, any account of this great show. But it remains unchanged in most of its departments, and has received large additions in others, many of which are of the highest order of merit. With the return of warm weather, the number of visitors will no doubt be much increased.

Piano-Fortes.—It is not generally understood that the pianos manufactured by Messrs. Grovesteen & Truslow have a peculiarity that no others possess. Its base or bottom-board is peculiarly constructed. The makers have a patent. It can neither settle nor spring, while it is light, being partly hollow. It consists of several pieces; the principal ones being the upper and lower boards, supported by an arch which is itself supported above and below in different places. For tone or beauty of finish, nothing of the kind excels them. The juries at the Crystal Palace awarded three prize medals to these gentlemen for the best piano-fortes on exhibition. The American Institute also awarded them prize medals for five years in succession.

The New-York State Poultry Society have chosen the following officers for the ensuing year:

President—D. S. Heffron, of Utica.

Vice-Presidents—Francis Rotch, Butternuts; M. Vassar, Poughkeepsie; Lewis F. Allen, Black Rock.

Corresponding Secretary—R. C. McCormick, jr., Woodhaven, L. I.

Recording Secretary and Treasurer—R. U. Sherman, Utica.

Managers—Samuel T. Tabor, Duchess; Thos. W. Ludlow, jr., Yonkers; Samuel Thorns, New-York City; C. W. Godard, Albany; A. P. Hammond, Westport, Essex county; W. H. Southwick, New-Baltimore; Samuel S. Breman, Hampton, Washington county; George St. George, New-York Mills, Oneida co.; A. A. Hudson, Syracuse; R. H. Van Rensselaer, Otsego county; F. W. Collins, Ontario county; Isaac E. Haviland, L. I.; Abner Baker, Rochester; William Walsh, Bethlehem, Albany county; John H. Cole, Columbia county; D. W. C. Van Slyck, Warner county; J. Wyman Jones, Utica; N. S. Smith, Buffalo; Curtis Moses, Syracuse; Thos. Gould, Cayuga county.

NEW BOOKS.

FOUR YEARS IN THE GOVERNMENT EXPLORING EXPEDITION, COMMANDED BY CAPT. CHARLES WILKES; a Narrative of a Cruise to the Island of Madeira, Cape Verd Islands, Brazil, Coast of Patagonia, Chili, Peru, Paumato Group, Society Islands, Navigator Group, Australia, Antarctic Ocean, Friendly Islands, Fejee Group, Sandwich Islands, North-west Coast of America, Oregon, California, East Indies, St. Helena, &c. By Lieut. GEO. M. COLVOCORESSES, U. S. Navy. 1 vol. Cloth, gilt. 12mo. pp. 350. 25 illustrations. Price reduced to $1. New-York: R. T. Young, 140 Fulton street.

THIS work, by an officer of the expedition, has reached its fourth edition. It contains a description of the natural scenery, manners, customs, religions, &c., of the countries visited. It is an interesting book of voyages, full of useful information, written in a good, easy style, that is calculated to impress the facts related upon the memory of the reader.

It is compiled from a journal kept by the author in obedience to a "general order" from the navy department, and for the general reader it is in a more desirable form than the massive government editions.

ELLIOTT'S FRUIT BOOK; or, the American Fruit-Grower's Guide, in Orchard and Garden. Being a compend of the history, modes of propagation, culture, &c., of fruit-trees and shrubs, with descriptions of nearly all the varieties of fruits cultivated in the country; notes of their adaptation to localities and soils, and also a complete list of fruits worthy of cultivation. By F. R. ELLIOTT. New-York: C. M. Saxton, agricultural book publisher, 152 Fulton street.

THIS is a work of more than five hundred pages, profusely interspersed with cuts, illustrating not only the great variety of fruits, but the modes of planting, pruning, grafting, budding, laying, training, &c., &c. It treats understandingly of manures and the general culture of plants and trees, and the best modes of guarding against the various insects that prey upon our fruit-trees and fruits. It is evidently the result of long experience, careful study, and persevering industry. To the fruit-grower or gardener it will be found of great value, and the plain farmer, who cultivates only his small apple-orchard, will find here all he needs to know in securing the object at which he aims.

THE FARMER'S MISCELLANY AND AGRICULTURIST'S GUIDE; Treating upon Gases, Salts, Atmosphere, Manures, Seeds, Hot-Beds, Grains, Vegetables, Fruits, Gardening, Grafting, Pruning, and Animals; with forms of agreement with laborers, and a great variety of agricultural matter, and an appendix of valuable receipts, &c. By GEO. W. MARSHALL, author of the Farmer's and Emigrant's Hand-Book, &c. Sixty illustrations. New-York: R. T. Young, publisher, 140 Fulton street.

THIS is a valuable cabinet of information. No one can peruse it, and not find for himself a thousand truths of importance, which he may not have learned before. It is of good print and paper, well bound, and we commend it to our young farmers, gardeners, and all others.

MEYER'S UNIVERSUM.—We have on several occasions referred to this series of illustrations, and numbers subsequently published have been quite as good as the preceding. The two volumes thus far published, contain a good variety of views of well-selected scenery in both continents, well executed, and form a handsome ornament for the centre-table and for the library. We commend it without hesitation to all our readers. The text, written by Mr. Dana, of the *Tribune*, is worthy of its accomplished author. The numbers are but twenty-five cents each, and contain at least four engravings, with well-arranged descriptions.

HOMŒOPATHIC PRACTICE OF MEDICINE. By Dr. FRELIGH. New-York: Lamport, Blakeman & Law, 8 Park Place.

A VOLUME of 576 pages, devoted to this subject, has been published by one of our enterprising houses. It is from one of no little eminence in the profession, and is well recommended. It may be regarded as the highest authority in the school to which the writer belongs, and will, no doubt, take rank among the best text books in that department. Its price is only $1.50.

ILLUSTRATED RECORD OF THE CRYSTAL PALACE.—This handsome volume, worthy of the publisher, Mr. G. P. Putnam, Park Row, is now closed. Mr. Putnam deserves much, not only of commendation, but of returns more substantial, for his efforts to do the subject justice. He has succeeded to the entire satisfaction of all reasonable men. The task was full of difficulty; every thing was to be prepared for it; artists were not easily found for so extensive and varied labor, but all has not only been done, but well done. The editors have done their part equally well, and furnish matter for the gratification and profit of the reader.

List of Patents Issued,

FROM FEB. 7 TO MARCH 7.

A. H. Caryl, of Sandusky city, Ohio, for improvement in picking and cleaning flax.

Matthias W. Baldwin and David Clark, of Philadelphia, Pa., for improved arrangement of vertical tube feed water-heaters, in locomotive smoke stacks.

Lewis S. Chichester, of Brooklyn, N. Y., for improvement in machines for cleaning wool.

John Griffiths, of Philadelphia, Pa., for improvement in valve-cocks.

F. C. Goffin, of New-York, for improvement in fire and burglar-proof safes.

Jonathan Knowles, of Trenton, N. J., for improvement in process of treating vegetable fibre. Patented in France, April 4, 1853.

Sam. G. Lewis, of Delaware Co., Pa., for improvement in making thick paper.

Thos. Cook, of New-York, assignor to Starkie Livsey, of same place, for improvement in fire-arms.

John Standish, of Cuyahoga Falls, Ohio, assignor to John Standish and Horace A. Miller, of same place, for improvement in machines for pegging boots and shoes.

Robert Preston, of North Pownal, Vt., for improvement in drying cloth.

Warren Robinson, of New-Haven, Conn., for improvement in ships' ventilators.

Jacob Reese, of Sharon, Pa., for improvement in hanging the fore-plate to iron-rolling machinery.

W. G. Sterling, of Bridgeport, Conn., for improvement in planting-hoes.

Henry S. William, of Malta, Ohio, for improvements in apparatus for controlling the pressure of steam.

Jacob D. Woodruff, of Newark, N. J., and J. H. Butterworth, of Dover, N. J., for improvement in drop-bridges.

Arcalous Wyckoff, of Wellsburgh, N. Y., for improvement in machines for making links of jack-chains.

Jno. Webster and Orson Spencer, of Cleveland, Ohio, assignors to Jno. Webster, of same place, for improvement in gas-burners.

Geo. B. Ambler, of Trumbull, Conn., for improvement in saddle-trees.

Frederick H. Bartholomew, of New-York, for improvement in water-closets.

Jason Barton, of Middle-Haddam, Conn., for improvement in horse-bells.

J. L. Burdick, of New-York, for improvement in machinery for paging blank books.

John W. Newell, of New-Paris, Ohio, for improvement in machines for stuffing horse-collars.

Horace Smith and Daniel B. Wesson, of Norwich, Conn., for improvement in fire-arms.

Allen Goodman and Lyman Wheeler, of Dana, Mass., for improved machine for scraping and toothing veneer.

Joel R. Bassett, of Cincinnati, Ohio, assignee to Caleb H. Williams, of same place, for improvement in ball-valves for pumps.

Frederick T. Andrews, of Georgetown, D. C., for improved method of operating saws.

Jason Barton, of Middle-Haddam, Conn., for improvement in the mode of attaching horse-bells to straps.

Jeremy W. Bliss, of Hartford, Conn., for improvement in window-cord pulleys.

E. G. Connelly, of Indianapolis, Ind., for improved carved sash-bolt.

Jno. T. Foster, of Jersey City, N. J., for improvement in stone-picking machines.

Wm. Perry of New-York, for improvement in oar-locks.

John B. Holmes, of Boston, Mass., for improvement in derricks.

Daniel J. Stearns, of Pittsfield, Mass., for improvement in stretching and drying cloth.

Jos. M. Schuyler and Wm. Zern, of Pottsville, Pa., assignees to Daniel L. Easterly, of same place, for improvement in weaving wire-screens.

Samuel F. Holbrook, of Boston, Mass., for improvement in contrivances for protecting passengers in railroad cars.

Amos P. Hughes, of Philadelphia, Pa., for improved tool for dovetailing.

Richard Montgomery, of New-York, for improvement in corrugating metal plates.

Martin Newman, 2d, and N. C. Whitcomb, of Lanesborough, Pa., and G. C. Cook, of Hartford, Conn., for improvement in whiffletree-hooks.

Elnathan Sampson, of Claremont, N. H., for improvement in attaching hubs to axles.

Jno. B. Smith, of Sunapee, N. H., for improved machine for slitting clothes-pins.

James Foster, Jr., of Cincinnati, Ohio, for improvement in seal presses.

Jno. Gledhill, of New-York, for improvement in treating hair for weaving.

Chas. F. Packard, of Greenwich, Conn., for improved machine for cutting lath.

Smith Thompson, of Newburyport, Mass., for improvement in spooling yarn from the cop.

Jno. Zink, of Greensville, Va., for improvement in thrashers and separators of grain.

Rufus Porter, of Washington, D. C., assignor to George Stephenson, of Northfield, Ind., for improvement in machinery for making cordage.

Solomon Smith, of Acton, Mass., assignor to himself and Wm. Schoaler, of same place, for improvement in parti-coloring machines.

Hiram Tucker, of Cambridgeport, Mass., assignor to himself and Joseph Storey, of Boston, Mass., for improvement in applying colors to stone. Patented in England, Sept. 14, 1852.

S. B. Batchelor, of Lowville, N. Y., for scythe fastenings.

J. W. Chittenden & Wm. C. Mead, of Vevay, Ind., for machine for splitting hoops.

John P. Conger, of Newark, N. J., for improved salt-kilns.

Lewis W. Colver, of Louisville, Ky., for a seed-planter.

R. W. Davis, of Rodgersville, N. Y., for improved churns.

A. K. Eaton, of New-York City, for machine for pulverizing ores.

Abijah Hall & Sylvanus Sturtevant, of South Paris, Me., for improved snow-ploughs and railroads.

Timothy D. Jackson, of New-York City, for dies for making seamless metal tubes.

Smith W. Bullock, of New-York City, assignor to Stillman, Allen & Co., of same place, for improved quartz-crushers.

Michael M. Gray, of Philadelphia, Pa., for railroad chair-machines.

Thomas D. Henson & George Rohr, of Charleston, Va., for seed-planters.

Wm. Burnett and John Absterdam, of Boston, Mass., for fusible discs in steam-boilers.

James Renton, of Newark, N. J., for zinc white furnaces.

F. G. Johnson, of Brooklyn, N. Y., for table to hold bank-notes when cut.

A. S. Lyman, of New-York City, for improved air engines.

Wm. McBride, of Bristolville, Ohio, for machines for making bed-pins.

James Pitts, of Lancaster, Mass., for cotton-picker cylinder.

Joseph Sawyer, of South Royalston, Mass., for socket for bench-hooks.

Wm. Sumner, of Worcester, Mass., for improvement in organs.

Solyman Bell, of Marseilles, Ill., for an improved harvester.

George A. Rollins, of Nashua, N. H., for a tool-rest for turning-lathes.

John S. Snyder & Joseph Young, of Wheatfield Township, Pa., for an improved seed-planter.

Linus Yale, of Newport, N. Y., for improvement in bank-locks.

Jacob Zook, of Harrisburg, Pa., for new carrier for lathes.

L. O. P. Meyer, of Newtown, Conn., for new mode of vulcanizing India-rubber and other gums.

James F. Brodhead, of Rondout, N. Y., for improved Forceps saw-sets.

Stephen P. Ruggles, of Boston, Mass., for an improved printing press.

David Swartz, of Tonis Brook, Va., for additional improvement in ploughs.

William Burnett, of Boston, Mass., for improved arrangement of fusible plugs or disks for steam-boilers.

Isaac Hussey, of Harveysburg, Ohio, for improvement in machines for plastering.

Caleb Cook, of Nashville, N. H., for improved arrangement of valve motion for locomotive-engines.

Warren Gale, of Louisville, Ky., for improvement in the gauge of straw-cutters.

William G. Phillips, of Newport, Del., for improved method of opening and closing gates.

Joel P. Heacock, of Marlborough, Ohio, for apparatus for rounding and bevelling barrel-heads.

George W. Cooper, of Palmyra, Ga., for improvement in cotton seed-planters.

Henry P. Kimble, of Rochester, N. Y., for improvement in sash-fasteners.

Wm. H. Johnson, of Granville, Mass., for improvement in sewing-machines.

George C. Hinman, of New-Haven, Conn., for improvement in sash-stainers.

George Levan, of West Earl Township, Penn, for improvement in reeling machines.

Samuel Loveland, of Astoria, N. Y., for improvement in sectional dry docks.

Levi B. Tyng, of Lowell, Mass., for improvement in tail-stocks for turning-lathes.

R. J. R. Stone, of Berlin, Ohio, for improvement in machines for boring and morticing carriage-hubs.

Joseph Sollenberger, of Higginsport, Ohio, for improvement in carriage-brakes.

James W. Stoakes, of Milan, Ohio, for improvement in apparatus for paying the seams of vessels.

Chauncey D. Woodruff, of Toledo, Ohio, for improvement in suspending eaves troughs.

Luther B. Fisher, of Cold Water, Mich., for improvement in seed-planters.

Jeremiah C. Gaston, of Reading, Ohio, for improvement in seed-planters.

Charles Miller, of St. Louis, Mo., for improvement in sewing-machines.

Clark Polley, of May's Landing, N. J., for improved method of operating hydraulic rams.

David B. Marks, of New-York, N. Y., for improvement in artificial legs.

Seaman C. Ripley, of New-York, N. Y., for improvement in brick-machines.

Joseph Sawyer, of South Royalston, Mass., for improvement in machines for splitting rattans.

Addison M. Sawyer, of Templeton, Mass., for improvement in machines for splitting rattans.

William Wickersham, of Boston, Mass., for improvement in sewing-machines.

Robert W. Andrews, of Staffordville, Conn., for improvement in Britannia tea and coffee-pots.

Jesse Young, of Franklin Furnace, Ohio, for improvement in connecting the joints of air-heating pipes.

William C. Wright, of Boston, Mass., for improvement in machines for drilling stones.

Ashley Hotchkin, of Shenevus, New-York, N. Y., for improvement in hanging gates.

Daniel Ryan and John Flanagan, of New-York, N. Y., for improvement in water-closets.

Joseph Wilson, of Hartford, Conn., for improvement in self-acting railroad switches.

Christopher Hodgkins, of Boston, Mass., assignor to Nehemiah Hunt, of same place, for improvement in sewing-machines.

Thomas Klegg, of North Andover, Mass., assignor to Thomas Clegg and Nathaniel Stephens, of Andover, Mass., for improvement in wire heddle-eyes for looms.

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Oct. '53, 1y.

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Mar. 54 tf.

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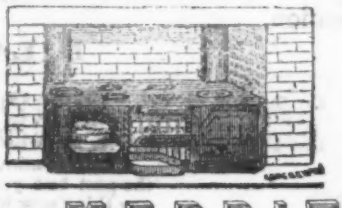

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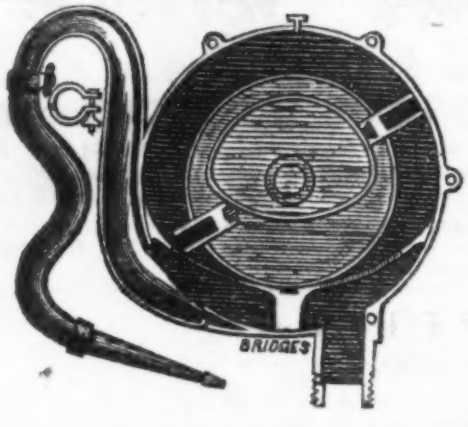

THE Inventor, after thoroughly testing this engine pump, the past two years,) feels confident that it is not equalled any thing now in market, in the way of raising or forcing wa the motion being rotary, the stream is constant, without the of an AIR vessel. The packing is self-adjusting, very dura and cannot well get out of order.

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No. 1 is a house or well pump and domestic Fire Engine, w will raise from 20 to 30 gallons per minute.

No. 2 will raise 100 gallons at 120 revolutions.

No. 2½ " 200 " 120 "

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Sept. 18–1y. CARY & BRAINERD.

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SEEDS FOR THE FIELD AND GARDEN.—Such as improved Winter and Spring Wheat, Rye, Barley, Oats, Corn, Beans Peas, Turnip, Onion, Cabbage, Beet, Carrot, Parsnip, Clover and Grass Seeds, Improved varieties of Potatoes, &c., &c. These are warranted fresh and superior of their kind.

FLOWER SEEDS of the choicest sorts.

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Leave Albany for New York:—Express Trains, 4 30 A. M., 8 45 A. M., 4 45 P. M.; Mail Train, 6 15 A. M.; Through Way Trains, 11 A. M., 4 45 P. M.: Way Train for Po'keepsie, 1 15 P.M. Trains leave Troy 15 minutes earlier than at Albany. Sunday Way and Mail Trains: Leave Canal St., New York, 3 40 P. M.; Albany, 4 30 A. M. and 3 P. M.

EDMUND FRENCH, Superintendent.

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For Naugatuck R. R.—Express—At 8 A.M. and 2 P.M.

For Danbury and Norwalk R. R.—Accommodation—At 7 A. M., and Express at 3 P. M.

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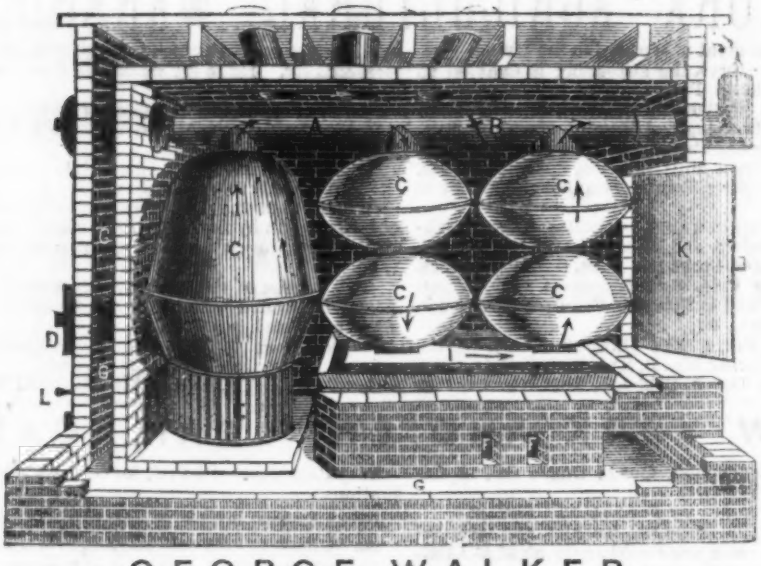
S. R. PARKHURST.

New York, January 17, 1854. Feb. tf.

Walker's Patent



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Do.	do. - - - - -	9 A. M.		Do.	do.	do.	- -	8 A. M.
Do.	do. - - - - -	3 30 P. M.		Do.	do.	do.	- -	3½ P. M.
Do.	do. - - - - -	7 P. M.		Do.	do.	do.	- -	5 P. M.
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Do.	- - - - -	6 10 P. M.		Do.	- -	5 P. M.

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A. B. WILSON'S PATENT,
(*August* 12, 1851,)
AND JUNE 15, 1852.

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These Machines are entirely different from any other, the principles on which they are made being *exclusively* our own.

Among the advantages of this Machine over any others are the following:—

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2. The perfect manner with which the operator is enabled to stitch and sew the various kinds of work, from the finest linen to the coarsest cloths.

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We are now manufacturing a larger sized Machine, more particularly adapted to the sewing of leather, canvas bags, and the heavier kinds of cloths.

An examination of our Machines is respectfully solicited at our Office, 265 Broadway.

Feb. 1y.

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INFALLIBLE LIQUID HAIR DYE.

THIS is a new article, just presented to the public. The proprietors have made the human hair the study of their lives, and having had occasion to use the thousand and one specifics which ignorant charlatans palm upon the public, they are able to judge of their injuriousness. After the invention of the present Dye, they for a long while, content to satisfy their own customers, made use of it only in their own business; but its merits becoming known, they were absolutely compelled to bring it before the public. Here it has been but a short time, yet its success has been unprecedented. Requests for the appointment of agents for its sale have poured in by every mail, while the orders for the article itself have almost exceeded the ability of the proprietors to supply. Its merits may be curtly summed up as follows: It is easily applied, and can be used by all without danger, full directions accompanying each bottle. It does not color the hair by scorching, like other preparations, but acts upon it by a newly discovered chemical power. Recent researches show that the hair is triangular, and in its natural state possesses all the powers of the prism. To restore this prismatic virtue is the theory of the Hair Dye. It also gives the fibres their soft and glossy texture, and protects the sacs in which all of them terminate. It does not stain the skin, and is the only compound of the kind upon which perfect reliance can be placed, as it never fails in giving a beautiful and natural black or brown color to the hair, whiskers or eyebrows.

☞ The proprietors are prepared to furnish it in large or small quantities. Price $1 and $1 50 per bottle, according to size. Liberal deduction to those who buy to sell again.

☞ In answer to the numerous inquiries from every part of the country, Messrs. D. & M. would say that if there be no agent who sells their Dye in the vicinity where the party wishing it resides, by enclosing $1 a bottle will be forwarded. Persons sending requests for the agency of it will please state plainly the place or district in which they wish to dispose of it.

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The Wahpene, as is well known to those who have used it, is not a Dye, gotten up to color the hair transiently; but a medical preparation which penetrates the bulb or root of the hair, promoting a healthy action throughout, and restoring it to its natural fullness of growth. Testimonials of its efficacy, in numerous instances, from sources of the highest respectability, may be seen at the Office, No. 114 Chambers Street.

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FROM THE

EAGLE CHEMICAL WORKS,

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Is a semi-monthly periodical, of 16 pages, royal octavo, devoted mainly to the topic of "No Immortality, nor Endless Life, except through Jesus Christ alone;" or that man is not constitutionally immortal; hence, apart from Christ, he will cease to be. There is no endless sin or suffering. GEORGE STORRS, New York, Editor and Proprietor. Published at 130 Fulton St., at $1 for the year, commencing in January. No subscription for a less time. Payment always in advance. THE EXAMINER has been published monthly for seven years past; and the theme on which it treats is increasing in interest in Europe and America. Various Books and Pamphlets are for sale by Mr. Storrs on the same subject, the most valuable of which is "BIBLE vs. TRADITION." Price 75 Cents, or ten copies for $5. It is a thorough refutation of the doctrine of natural immortality and endless sin and suffering.

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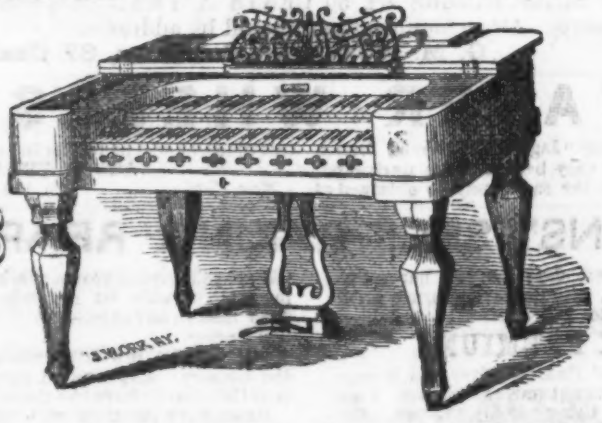

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2 doors from Nassau St., N. Y.
WM. McFARLAND & CO.

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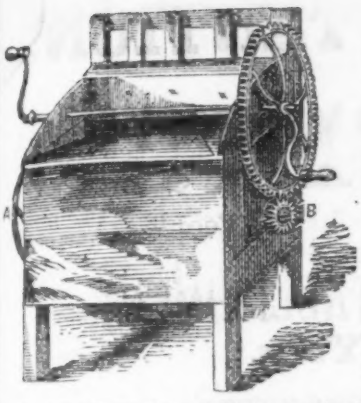

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This Machine has met with the universal approbation of allclasses of men wherever introduced. It was awarded the *first premium*, a heavy SILVER MEDAL, at the Great Fair of the Maryland Institute, held in Baltimore, October, 1850.

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